

NOVA GUINEA

RÉSULTATS DES EXPÉDITIONS SCIENTIFIQUES
À LA NOUVELLE GUINÉE

PUBLIÉS SOUS LA DIRECTION DE

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Vol. XVIII
BOTANIQUE

LEIDEN

E. J. BRILL

1936

ORCHIDACEAE

BY

J. J. SMITH.

This sixth contribution deals with the Orchidaceae which have been collected by Prof. Dr. W. M. DOCTERS VAN LEEUWEN during the New-Guinea expedition of 1926.

In working out this collection I have repeatedly received assistance from Dr. R. MANSFELD of the Berlin Herbarium, who has in dubious cases been kind enough to examine SCHLECHTER's type specimens. For his kindness I once more express my hearty thanks.

The beautiful plates have been transferred from my original pencil-drawings into Chinese ink by Miss M. E. Kunst, Batavia, in order to be adapted to reproduction.

In the former contribution to the Orchidaceae from New-Guinea (XIV, livr. 3) the figures t. LXXIV 104 and t. LXXV 105 have been interchanged. Tab. LXXIV 104 represents *Bulbophyllum commissibulbum* J. J. S., t. LXXV 105 *B. Lamii* J. J. S.

Peristylus Bl.

Peristylus papuanus J. J. S. in Nova Guinea XII (1913), 3; etc.

Dutch New-Guinea: Nassau-mountains, Exploration-bivouac, 1200 m., primeval forest. (W. M. DOCTERS VAN LEEUWEN n. 10780, October 1926; "flowers green").

Habenaria Willd.

Sect. *Salaccenses* (incl. *Medusaeformes*).

Habenaria pinnatipartita J. J. S. n. sp.

Tab. III, 1.

Caulis erectus, elongatus, basi radicans, c. 77 cm. longus, inferne longitudine 41 cm. vaginis tubulosis tectus, parte superiore laxe foliatus. Folia c. 10, lanceolata, sensim longe acute acuminata, basin versus sensim angustata, sessilia, costa media subtus prominente, sicco membranacea, ad c. 19.5 cm. longa, 3.5 cm. lata; vaginae tubulosae. Inflorescentia erecta, multiflora, pedunculo c. 10 cm. longo, nonnullis vaginulis foliaceis superne decrescentibus et in bracteas vergentibus donato, rachide immatura 14 cm. superante. Bracteae adpressae, florem aequantes, e basi ovato-oblonga sensim longe caudato-acuminatae, concavae, 3-nerviae, c. 2.7

cm. longae, 0.55 cm. latae. Flores patentes, c. 2.15 cm. longi, 1.6 cm. lati. Sepalum dorsale erectum, valde concavum, apice recurvulum, ovatum, apice breviter obtuse contractum, nervis 3 dorso prominentibus, c. 0.8 cm. longum, 0.5 cm. latum. Sepala lateralia reflexa, concava, marginibus plus minusve convexis, apice recurvula, oblique ovato-triangularia, apicem versus angustata, obtusa, breviter conico-apiculata, nervis 3 dorso prominentibus, c. 0.97 cm. longa, 0.48 cm. lata. Petala alte bipartita, basi contracta, 2-nervia, nervo antico supra basin furcato, supra basin fere 0.3 cm. lata, lacinia postica cum sepalo dorsali galeam formante, oblique oblongo-triangularia, falcata, apicem versus sensim angustata, acuta vel obtusiuscula, margine postico supra basin leviter rotundato-dilatata, usque ad basin labelli 0.8 cm. longa, supra basin fere 0.3 cm. lata, lacinia antica patentissima, supra basin falcato-adscendente, oblique late linearis, longe filiformi-producta, margine antico laciniam similem plus minusve brevioris et interdum laciniam dentiformem additam emittente, inexplorata c. 1 cm. longa supra basin 0.1 cm. lata. Labellum calcaratum, tripartitum, ungue quadrangulo, plano cum sulcis 2 inconspicuis longitudinalibus, c. 0.2 cm. longo, 0.24 cm. lato, lacinia intermedia supra basin leviter obtusangule sursum curvula, porrecta, linearis, obtusa, convexa, c. 0.86 cm. longa, basi fere 0.2 cm. lata, lacinias lateralibus deflexis, cum lacinia intermedia angulum acutum facientibus, irregulariter oblique linearibus, filiformi-productis, margine postico plerumque lacinias 3 patentes inaequales filiformes et interdum margine antico lacinulam brevissimam emittentibus c. 0.85—bene 1 cm. longis; calcar deorsum spectans, cum ovario angulum acutum faciens, leviter incurvulum, clavatum, subteres, obtusum, parte inflata dorso obtusangula cum costa longitudinali, c. 1.63 cm. longum. Gynostemium erectum, breve, dorso 0.35 cm. longum, auriculis conspicuis, lateraliter compressis, angulato-subovalibus, valde verrucosis. Anthera apice biloba, thecis satis approximatis, parallelis, a latere compressis, bene 0.4 cm. longis, clavatis, canalibus leviter falcatulo-incurvulis. Rostelli lobus intermedius erectus, medium antherae circiter attingens, rotundato-triangularis, carnosus, cruribus canalibus parallelis subteretibus sulco longitudinali instructis canales paululum superantibus. Processus stigmatici porrecti, crura rostellii superantes, oblique oblongi, obtusi, c. 0.27 cm. longi. Ovarium apice subrostrato-attenuatum, 6-costatum, leviter recurvulum, c. 1.6 cm. longum; pedicellus brevis, tortus, 0.4 cm. longus.

Dutch New-Guinea: Nassau-mountains west, 1500 m., primeval forest. (W. M. DOCTERS VAN LEEUWEN n. 10935, October 1926; "flowers green").

For the present I have described this plant as a new species, although it is very nearly related to *H. paucipartita* J. J. S. which, however, differs in the entire petals and the acute central lobe of the rostellum. It is, however, to be noted that of both species only a single plant was collected, and that *H. paucipartita* was described from herbarium. Also *H. notabilis* Schltr. is a near ally but is, according to the description and figure, characterized by the deflexed anterior lacinia of the petals, the densely digitate side laciniae of the lip and the not clubbed spur.

Description from a dried plant and flowers preserved in alcohol.

Corybas Salisb.

Sect. Calcearia.

Corybas erythrocarpus J. J. S. n. sp.

Tab. III, 2.

Tuber subglobosum, c. 0.325—0.5 cm. diam. Caulis hypogaeus grosse pilosus, c. 0.8—4.5 cm. longus, stolones pilosos emittens. Caulis epigaeus c. 0.5—1.3 cm. longus, vagina tubulosa filiformi-subulato-acuminata c. 0.5 cm. longa ad basin. Folium sessile, cordatum, breviter acute acuminatum, lobis basilaribus rotundatis non tegentibus, costa media dorso prominente, c. 1.1—1.5 cm., cum lobis basilaribus 1.25—1.8 cm. longum, 0.8—1.5 cm. latum. Bractea basi ovario adpressa, deinde patens, concava, e basi triangula sensim longe filiformi-angustata, 1-nervia, c. 0.675 cm. longa, basi 0.14 cm. lata. Sepalum dorsale reversum, valde incurvum, valde concavum, anguste oblongum, apicem versus leviter dilatatum, obtusum, longe abrupte subulato-acuminatum, basi leviter contractum, nervis 5 dorso praesertim costa media prominentibus, c. 1.55 cm. longum, subula fere 0.2 cm. longa, basi 0.23 cm., superne 0.42 cm. latum. Sepala lateralia elongata, lineari-filiformia, trigona, canaliculata, 1-nervia, c. 2.35 cm. longa, basi 0.075 cm. lata. Petala sepalis lateralibus similia sed longiora, c. 3.8 cm. longa, fere 0.1 cm. lata. Labellum reversum, parallelum sepalo dorsali valde recurvum, marginibus incurvis anguste tegentibus inferne tubulosum, limbo valde dilatato, transverse reniformi-ovali, irregulariter dentato-serrato, apice medio apiculato, ecalloso, intus praesertim medio minutissime papilloso, c. 17-nervio, semiexpanso c. 1.1 cm. longo, 1.3 cm. lato, calcaribus 2, brevibus, divergentibus, conicis, obtusis, c. 0.15 cm. longis. Gynostemium reversum, cum ovario angulum obtusum faciens, dorso convexum, basi callo basi labelli adnato instructum, cum anthera c. 0.225 cm. longum. Anthera cucullata, porrecta, quadrangula, conduplicata, apice rotundato-bilobula. Stigma suborbiculare, concavum, margine elevato incurvulo. Ovarium valde recurvum, crassiusculum, 6-sulcatum, c. 0.3 cm. longum. Capsula immatura sessilis, oblonga, c. 0.625 cm. longa.

Dutch New-Guinea: Rouffaer-river, confluent C, 250 m., bank, shady spots on rotten wood, on stones in moss, common, few in flower. (W. M. DOCTERS VAN LEEUWEN n. 10215, September 1926; "leaves veined white, flowers dark violet-brown and white, fruit red").

In the aristate dorsal sepal resembling *C. aristata* Schltr. but with larger flowers, much longer petals and the lip being conspicuously dentate, minutely papillose inside and without callosities, and a much shorter ovary.

Description from materials preserved in alcohol.

Vrydagzynea Bl.

Vrydagzynea? novaguineensis J. J. S. in Nova Guinea VIII (1909), 13; XIV (1929), 510; Schltr. Fig. Atlas (1925) t. XXXIV, Nr. 117. — *V. papuana* Schltr. in Nachtr. Fl. D. Schutzgeb. Südsee (1905), 85. — *V. discolabris* J. J. S. in Nova Guinea XIV (1929), 343, t. XLIII, 7.

Dutch New-Guinea: Nassau-mountains, Exploration-bivouac, primeval forest. (W. M. DOCTERS VAN LEEUWEN n. 10569, October 1926, "flowers white" (in fruit), 900 m.; n. 10659, October 1926, "flowers yellowish green" (in fruit), 700 m.).

The determination is not quite sure, the specimens being in fruit.

Vrydagzynea paludosa J. J. S. in Bull. Dép. Agric. Ind. Néerl. XIX (1908), 39; in Nova Guinea VIII (1909), 12, t. IV, 11; XIV (1929), 510. — *V. elongata* Schltr. (p. p., nec Bl.) in Nachtr. Fl. D. Schutzgeb. Südsee (1905), 84. — *V. rivularis* Schltr. Orch. D. N. Guinea (1911), 85; Fig. Atl. (1925), t. XXXV, Nr. 118. — *V. Schumanniana* J. J. S. (nec Krzl.) in Nova Guinea XII (1915), 190; XIV (1929), 344, 510.

Dutch New-Guinea: Rouffaer-river, 350 m., riverbank on stones, common. (W. M. DOCTERS VAN LEEUWEN n. 10467, September 1926; "flowers white").

Vrydagzynea elongata Bl. Fl. Jav. n. s. I (1858), 61, t. 28, fig. 1; Schltr. in Nachtr. Fl. D. Schutzgeb. Südsee (1905), 84 (p. p.); J. J. S. in Nova Guinea XIV (1929), 511. — *V. pachyceras* Schltr. l. c.; Fig. Atl. (1925), t. XXXIV, Nr. 116. — *V. rectangulata* J. J. S. in Bull. Jard. Bot. Buit. 2e sér. XIII (1914), 54. — *Hetaeria elongata* Miq. Fl. Ind. Bat. III (1859), 726.

Dutch New-Guinea: Van der Willigen-river, 65 m., young forest near bank, common, only one plant in flower. (W. M. DOCTERS VAN LEEUWEN n. 9694, July 1926; "flowers white").
Rouffaer-river, 250 m., in dense shade on steep riverbank. (W. M. DOCTERS VAN LEEUWEN n. 10393, September 1926; "flowers light yellowish white").

Vrydagzynea albostrata Schltr. in Schum. et Laut. Nachtr. Fl. D. Schutzgeb. Südsee (1905), 83; Fig. Atl. (1925), t. XXXV, Nr. 121.

Tab. III, 3.

Caulis e basi decumbente radicante adscendens, cum ramificatione c. 16—20 cm. longus. Folia inferiora parva remotaque, 4—6 superiora approximata, lanceolata ad ovato-lanceolata, versus apicem sensim angustata vel subacuminata, acuta, basi breviter in petiolum contracta, costa media dorso prominente, ad c. 5.4—4.5 cm. longa, 1.15—1.55 cm. lata; petiolus brevissimus, latus, cum vagina tubulosa c. 0.8—0.65 cm. longus. Inflorescentia brevis, dense satis multiflora, pedunculo basi glabro, superne piloso, c. 1.65 cm. longo, nonnullis vaginulis foliaceis donato, rachide pilosa, cum floribus 3 cm. superante. Bractee lanceolato-triangularae, acutae; basi utrinque leviter rotundato-dilatatae, breviter superne brevissime ciliolatae, dorso sparse pubescentes, concavae, 1-nerviae, c. 0.9 cm. longae, 0.27 cm. latae. Flores parvi, erecti, angusti, c. 0.57 cm. longi, 0.225 cm. lati, sepalis conniventibus, dorso apice excepto pilis glanduliferis reversis patentibus plerumque curvatis parce inspersis. Sepalum dorsale anguste oblongum, in $\frac{1}{3}$ infra apicem leviter constrictum, obtusum, concavum, apice incrassatum, 1-nervium, c. 0.33 cm. longum, bene 0.1 cm. latum. Sepala lateralia oblique anguste oblonga, lateribus incurvis superne angustata, obtusa, margine antico basi paulum dilatato calcari adpressa, canaliculato-concava, apicem versus subcymbiformia et sensim incrassata, 1-nervia, c. 0.375 cm., margine antico 0.43 cm. longa, 0.16 cm. lata. Petala sepalo dorsali agglutinata et distincte breviora, inaequilatera, ex ungue brevis angusto in laminam oblique oblongo-semiovatam angulo basilari rotundatam apice truncatam $\frac{3}{5}$ partibus superioribus marginibus exceptis oblongo-quadrangulo-incrassatam abrupte dilatata, concava, margine exteriore incurva, 1-nervia, c. 0.3 cm. longa, ungue 0.06 cm. longo, lamina 0.25 cm. longa, 0.1 cm. lata. Labellum totum fere 0.5 cm. longum; lamina porrecta, vix incurvula, marginibus basi incurvis gynostemio adpressa, marginibus superne incurvis apice vix contiguis crepidiformis, inexpansa oblongo-ovata, obtusa, intus fascia incrassata longitudinali lata convexa, gynostemium bene superans, usque ad apicem ovarii c. 0.275

cm. longa, 0.13 cm. lata; calcar reversum, inferne ovario adpressum, apice leviter a dorso compresso ab ovario patente, cum lamina angulum obtusum faciens, antice subrectum, subteres, vix a dorso compressum, anguste oblongum, apice truncato obtusangule retusum, c. 0.225 cm. longum, 0.12 cm. latum, glandulis 2 globosis breviter stipitatis cum stipite 0.075 cm. longis in c. $\frac{1}{3}$ supra basin calcaris solutis $\frac{2}{3}$ supra basin attingentibus. Gynostemium breve, supra visum ambitu late cuneato-quinquangulare, basi contractum, subtus costis 2 longitudinalibus a stigmatibus decurrentibus donatum, c. 0.175 cm. longum, clinandrium alte excavato margine utrinque in lobulum conspicuum porrectum triangulum obtusum concavum exeunte. Anthera cucullata, basi in clinandrium immersa, brevis, lata, reniformis, obtusa, lobulis basilaribus obtusis sinu lato sejunctis, connectivo longitudinali convexo-incrassato, bene 0.1 cm. lata. Rostellum (cum glandula) porrectum, stigmata paululum superans, oblongum, obtusum. Stigmata 2, porrecta, apice distincte recurva, lata, obtusa. Ovarium apicem versus sensim leviter attenuatum, basi abrupte in pedicellum brevissimum contractum, tortum, 6-sulcatum, reverse glanduloso-pilosum, c. 0.5 cm. longum.

Dutch New-Guinea: Mamberamo, Albatros-bivouac, 30 m., primeval forest, a single flowering plant. (W. M. DOCTERS VAN LEEUWEN n. 9126, May 1926; "flowers white").

SCHLECHTER's figure cited above agrees with mine but his description leaves to be desired. Description from a single dried specimen the inflorescence of which was preserved in alcohol.

Zeuxine Lndl.

Zeuxine amboinensis J. J. S. in Ic. bog. II (1905), 259; etc.

Dutch New-Guinea: Rouffaer-river, 175 m., primeval forest. (W. M. DOCTERS VAN LEEUWEN n. 9829, August 1926; "sepals light green, petals white").

Hetaeria Bl.

Hetaeria pauciseta J. J. S. in Fedde Rep. XII (1913), 394; in Nova Guinea XII (1915), 189, t. LXIII, 103.

Dutch New-Guinea: Mamberamo, Batavia-falls, 65 m., primeval forest near river. (W. M. DOCTERS VAN LEEUWEN n. 9679, July 1926; "flowers yellowish brown"). Albatros-bivouac, 60 m., primeval forest. (W. M. DOCTERS VAN LEEUWEN n. 11256, November 1926; "flowers yellowish").

Cystopus Bl.

Cystopus fimbriatus J. J. S. in Bull. Dép. Agric. Ind. Néerl. X (1907), 3; in Nova Guinea VIII (1909), 16, t. V, 14; Schltr. Orch. D. N. Guinea (1911), 69; Fig. Atl. (1925), t. XXVIII, Nr. 94.

Dutch New-Guinea: Nassau-mountains west, 1500 m., primeval forest. (W. M. DOCTERS VAN LEEUWEN n. 11013, October 1926; "flowers white").

Cystorchis Bl.

Cystorchis rostellata J. J. S. in Nova Guinea XIV (1929), 340, t. XLIV, 9.

Dutch New-Guinea: Nassau-mountains, 1800 and 2000 m., primeval forest. (W. M. DOCTERS VAN LEEUWEN, nrs. 10826 and 10925, October 1926; "stem and leaves red-brown, flowers white, sepals red-brown or red").

I have no doubt as to the correctness of the determination though I did not describe the small teeth at the base of the lip, probably owing to the fact that I had only dried material at my disposal.

Macodes Lndl.

Macodes Sanderiana Rolfe in Kew Bull. 1896, 47; Schltr. Orch. D. N. Guinea (1911), 71; Fig. Atl. (1925), t. XXIX, Nr. 97; etc.

Dutch New-Guinea: Rouffaer-river, confluent C, 250 m., shady places against the stone-wall along the river. (W. M. DOCTERS VAN LEEUWEN n. 10462, September 1926; "leaves velvety bronze-green with reddish veins, flowers greenish yellow, lip yellow; flowers of another plant more reddish"). Same locality, Hoofd-bivouac, 250 m., common. (W. M. DOCTERS VAN LEEUWEN n. 11403, December 1926; "leaves dark velvety with light veins, flowers green, lip yellowish brown").

Corymborchis Thou.

Corymborchis tropidiifolia J. J. S. n. sp.

Tab. IV, 4.

Caules erecti, elongati, superne tortiles, teretes, c. 60 cm. longi, parte inferiore vaginis. tubulosis tantum tecti, ceterum foliati, radicibus tenuibus, longe tenuiter pilosis. Folia oblongo-ad lanceolato-elliptica, longius acuminata, anguste obtusa cum mucrone, basi acuta in petiolum contracta, nervis majoribus c. 7 subtus prominentibus, subtus sparse furfuraceo-squamulosa, adulta glabrescentia, sicco membranacea, ad c. 20 cm. longa, 5.2 cm. lata, superiora decrescentia; petiolus canaliculatus, prominenter nervosus, c. 1—2 cm. longus; vagina elongato-tubulosa, prominenter nervosa, sparse furfuracea. Inflorescentiae axillares, plano-paniculatae, pedunculo cauli adpresso, vagina incluso, compresso, c. 4 cm. longo, panícula cum floribus c. 4.5—6.75 cm. longa, c. 10-flora, ramis alternantibus, patentissimis, bracteis suffultis, cum floribus ad c. 4—4.5 cm. longis. Bracteae floriferae alternatim bifariae, rachidem amplectentes, concavae, triangulae, subulato-acuminatae, dorso carinatae, c. 0.475 cm. longae, 0.375 cm. latae. Flores parvuli, c. 1.6 cm. longi, 2.5 cm. lati, sepalis dorso parce furfuraceo-puberulis. Sepalum dorsale c. 0.3 cm. supra sepala lateralía insertum, erecto-patens, medio fere rectangule recurvum, canaliculatum, spathulatum, 5-nervium, c. 1.8 cm. longum, ungue lineari, c. 0.9 cm. longo, 0.2 cm. lato, lamina oblongo-ovata, apicem versus angustata, obtusa, acute conico-apiculata, 0.9 cm. longa, 0.35 cm. lata. Sepala lateralía erecto-patentia, recurva, oblique spathulata, 5-nervia, nervis exterioribus brevibus, costa media dorso prominente, c. 2 cm. longa, ungue oblique lineari, canaliculato, c. 1.17 cm. longo, basi 0.24 cm., apice c. 0.2 cm. lato, lamina oblique oblongo-ovata, sensim acuminata, conico-apiculata, 0.825 cm. longa, 0.36 cm. lata. Petala erecta, adpressa, 3-nervia, nervis valde approximatis, costa media dorso valde prominente, intus parce dorso vix furfuraceo-puberula, oblique spathulata, expansa fere 2 cm. longa, ungue canaliculato, lineari, undulato, superne repandulo-crenulato, valde oblique inserto, c. 1.15 cm. longo, 0.2 cm. lato, basi obliqua 0.3 cm. lato, lamina revoluta, oblique ovata, apicem versus angustata, vel plus minusve elliptica, anguste obtusa, apiculata, crispata, minute irregulariter crenulata, c. 0.9 cm. longa, 0.44 cm. lata. Labellum erectum, gynostemio adpressum et vix longiore, spathulatum, 3-nervium, intus costis 2 conspicuis supra basin incipientibus in apice unguis dorso

contiguus cuniculum facientibus in basi laminae attenuatis recurvis terminantibusque, expansum 2 cm. longum, ungue valde canaliculato, anguste oblongo, apice leviter contracto, $\frac{3}{4}$ partibus inferioribus marginibus exceptis carnosio-incrassato, c. 1.3 cm. longo, inferne 0.43 cm., superne 0.34 cm. lato, lamina concava, apice valde recurva, suborbiculari, apice brevissime triangulo-producta, valde crispata, c. 0.7 cm. longa, 0.8 cm. lata. Gynostemium gracile, elongatum, magnam partem subrectum, apice recurvulum, clavatum, superne parce adpresse furfuraceo-puberulum, c. 1.55 cm. longum, clinandrio magno, concavo, obovato-quadrangulo, marginibus antice utrinque in auriculam liberam porrectam triangulam acutam producto. Anthera cucullata, oblongo-ovata, apicem versus sensim rotundato-angustata, acutiuscula, sulcis 2 longitudinalibus subaequaliter 3-costata, c. 0.36 cm. longa. Rostellum erectum, antheram aequans, triangulum, acuminatum, acute bidentatum, subtus convexum, supra concavum. Stigma transversum, margine inferiore in lobulos 2 patentissimos vix recurvulos medio concavos rotundato-triangulos productum. Ovarium obtuse trigonum, 6-sulcatum, c. 1 cm. longum.

Dutch New-Guinea: Mamberamo, Albatros-bivouac, 30 m., primeval forest. (W. M. DOCTERS VAN LEEUWEN n. 9124, May 1926; "flowers white").

Differing from the Papuan *Corymbis minor* Schltr. in the broader leaves furfuraceous on the lower surface, the keels of the lip not reaching the base and the much longer column; and from *C. parviflora* J. J. S. from Boeroe in the narrower leaves furfuraceous below, spatulate dorsal sepal, broader lip and the shape of the anther.

Description from herbarium and flowers preserved in alcohol.

Corymborchis? *veratrifolia* Bl. Fl. Jav. n. ser. I Orch. (1858), 105, t. 42 E; t. 43, fig. 1; etc.

Dutch New-Guinea: Mamberamo, Albatros-bivouac, 30 m., primeval forest. (W. M. DOCTERS VAN LEEUWEN n. 9124a, May 1926).

Mixed with the above species I found a few branches with much broader leaves and much larger flowers. As far as could be traced from the material they strikingly resemble *C. veratrifolia* Bl. as does the plant enumerated under this name by SCHLECHTER in his "Orchidaceen von Deutsch Neu Guinea" and figured in his "Figuren-Atlas."

Coelogyne Lndl.

Sect. Speciosae.

Coelogyne Beccarii Rchb. f. in Bot. Centralbl. XXVIII (1886), 345; etc.

Dutch New-Guinea: Rouffaer-river, confluent C, 250 m. (W. M. DOCTERS VAN LEEUWEN n. 10460, September 1926). Nassau-mountains, Exploratibivouac, 1200 m., primeval forest. (W. M. DOCTERS VAN LEEUWEN n. 10779, October 1926).

Sect. Verrucosae.

Coelogyne asperata Lndl. in Journ. Hort. Soc. IV (1849), 221; etc.

Dutch New-Guinea: Mamberamo, Albatros-bivouac, 100 m., hill ridge, common, terrestrial. (W. M. DOCTERS VAN LEEUWEN n. 11400, December 1926).

Claderia Hook f.

Claderia papuana Schltr. Orch. D. N. Guinea (1911), 222; Fig. Atl. t. LXXXIII, Nr. 304.

Dutch New-Guinea: Rouffaer-river, confluent C, 250 m., thin-stemmed forest, climbing, terrestrial. (W. M. DOCTERS VAN LEEUWEN n. 10267, September 1926; "flowers light yellow with dark green markings").

Plocoglottis Bl.

Sect. *Euplocoglottis*.

Plocoglottis sphingoides J. J. S. in Fedde Rep. XI (1913), 554; in Nova Guinea XII (1915), 198, t. LXV, 108.

Dutch New-Guinea: Nassau-mountains, 500 m., Rouffaer-river, primeval forest. (W. M. DOCTERS VAN LEEUWEN n. 10756, October 1926; "flowers orange dotted red").

Sect. *Porphyrophyllis*.

Plocoglottis? atroviridis Schltr. Orch. D. N. Guinea (1912), 403; Fig. Atl. t. CXXXI, Nr. 531. — *O. Lowii* Rchb. f. var. *papuana* J. J. S. in Nova Guinea XII (1915), 197.

Dutch New-Guinea: Hinterland of Hollandia, 300 m. (K. GJELLERUP n. 1005, 18 February 1912, also cult. in Hort. Bog. sub n. 222). Idenburg-river, 400 m. (W. FEUILLETAU DE BRUYN n. 116, 14 September 1914). Mamberamo, Pionier-bivouac, 50 m. (H. J. LAM n. 2106, 9 January 1921). Idem, Albatros-bivouac, 75—150 m., forest. (W. M. DOCTERS VAN LEEUWEN n. 9070, May 1926; n. 9470, July 1926; n. 11184, November 1926).

Although SCHLECHTER does not say that the underside of the leaves of his species is violet, I have little doubt that the plant I described provisionally as a variety of *P. Lowii* Rchb. f. is identical with *P. atroviridis*.

Sect. *Phyllocaulos*.

Plocoglottis kaniensis Schltr. Orch. D. N. Guinea (1912), 406; Fig. Atl. t. CXXXXII, Nr. 535. — *P. papuana* Schltr. l. c. 407; Fig. Atl. t. CXXXXII, Nr. 536.

Dutch New-Guinea: Mamberamo, Albatros-bivouac, 60—70 m., primeval forest. (W. M. DOCTERS VAN LEEUWEN n. 9004, 7 May 1926, "flowers yellowish brown dotted red-brown, lip white with red streaks"; n. 11255, November 1926, "flowers brownish yellow dotted red-brown, lip light yellow"). Rouffaer-river, 175 m., hills, primeval forest. (W. M. DOCTERS VAN LEEUWEN n. 10120, August 1926; "flowers yellow dotted red").

When determining the different collections of *Plocoglottis* it proved not quite possible to separate *P. kaniensis* Schltr. and *P. papuana* Schltr., also after comparison of the duplicates in the Leiden Herbarium. Dr. R. MANSFELD, who at my request had the kindness to go also through the type material, came to the same conclusion. SCHLECHTER's figures are not quite correct.

Plocoglottis lacuum J. J. S. n. sp.

Tab. IV, 5.

Planta valida, caulium partes adsunt c. 50 cm. longae, 7—8-foliae. Folia erecto-patentia, lanceolata, acute acuminata, basi supra vaginam breviter contracta, glabra, nervis 5—7 majoribus

subtus prominentibus, c. 30—41 cm. longa, 6.5—7.5 cm. lata; vaginae elongatae, tubulosae, prominenter nervosae. Inflorescentiae elongatae, laxe multiflorae, diu flores gignentes, pedunculo sicco atrofusce puberulo, c. 74 cm. longo, vaginulis tubulosis donato, rachide angulata, cum bracteis alabastrisque atrofusce velutina. Bractee initio ad apicem rachidis erectae imbricatae, concavae, apice saepe plus minusve incurvulae, haud recurvae, e basi late triangula contractae, obtusae, subulato-apiculatae, concavae, marginibus inferne convexae, utrinque dense velutino-puberulae, crasse carnosae, c. 0.8—0.85 cm. longae, 0.65 cm. latae. Flores quaquaversi, carnosuli, c. 2.6 cm. longi, sepalis dorso dense patentissime puberulis. Sepalum dorsale cum ovario angulum rectum faciens, incurvum, concavum, oblongum, apicem versus angustatum, acutiusculum, intus sparse inferne densius puberulum, c. 1.5 cm. longum, 0.5 cm. latum. Sepala lateralialia reflexa, reversa, ovario subadpressa, concava, oblique oblonga, apicem versus angustata, conico-acuta, intus sparse puberula, 7-nervia, nervis exterioribus minoribus, c. 1.6 cm. longa, 0.5 cm. lata. Petala patentissima, recurvula, oblique linearia, vix falcata, apice breviter canaliculato-acuminata, anguste obtusa vel acutiuscula, intus sparse basi densius puberula, dorso densius apice parce puberula, carnosula, margine tenuia, utrinque convexa, dorso leviter longitudinaliter sulcata, c. 1.5 cm. longa, fere 0.3 cm. lata. Labellum parvum, elastice insertum, basi utrinque membrana triangula gynostemio inferne adnatum, valde fere conduplicato-convexum, supra visum cuneatum, margine apicali valde recurvo bilobum, supra in utraque parte sulci longitudinalis valde convexo-umbonatum, umbonibus basin versus angustatis superne sparse patentissime hirtello-puberulis, carnosum, calcari brevi, reverso, valde a latere compresso, in formam costae brevis in basin labelli dorso decurrente, inexplanatum totum c. 0.95 cm. longum, apice 0.5 cm. latum, explanatum totum c. 1.15 cm. longum, lamina subquadrata, basi utrinque rotundata, infra angulos apicales oblique truncatos paululum constricta, apice leviter exciso-truncata papillosa, tota 0.925 cm. longa, basi 0.73 cm., infra apicem 0.7 cm. lata, cuspidate triangula, acuta, 0.14 cm. longa, 0.125 cm. lata. Gynostemium cum ovario angulum obtusum faciens, breve, crassum, praesertim dorso a latere compressum, dorso convexum, magnam partem pubescens, subtus infra stigma in utraque parte canaliculae altae longitudinalis convexum, marginibus inferne obtusangule dilatatis, dorso 0.65 cm., subtus 0.85 cm. longum, clinandrio excavato suborbiculari, pariete postico producto porrecto triangulo obtuso. Anthera alte cucullata, ovata, obtusa, medio fere constricta, c. 0.225 cm. longa, 0.16 cm. lata. Stigma suborbiculare. Ovarium pedicellatum 6-sulcatum, inferne tortum, dense puberulum, c. 1.95 cm. longum.

Dutch New-Guinea: Meervlakte, Rouffaer-river, Motor-bivouac, 100 m., primeval forest, terrestrial. (W. M. DOCTERS VAN LEEUWEN nrs. 11054, November 1926, "inflorescence up to 2 m. high, flowers orange dotted red, lip yellow, fruit reddish", and 11125, November 1926, "flowers yellow, dotted brown, lip white").

In the appressed young bracts this species resembles *P. maculata* Schltr., but this is a much smaller plant, and *P. mamberamensis* J. J. S. which also is smaller, with the number of bracts at the young apex of the rachis more numerous, and with lanceolate petals.

Description from herbarium and flowers preserved in alcohol.

Plocoglottis latifrons J. J. S. in Fedde Rep. XI (1912), 135; in Nova Guinea XII (1915), 201, t. LXVI, III.

Dutch New-Guinea: Mamberamo, Albatros-bivouac, 150 m., summit of hill, primeval forest. (W. M. DOCTERS VAN LEEUWEN n. 9469, July 1926; "flowers light yellow, base of lip white, all dotted violet").

Calanthe R. Br.

Sect. *Eucalanthe*.

Calanthe bicalcarata J. J. S. in Bull. Dép. Agric. Ind. Néerl. V (1907), 31; in Nova Guinea VIII (1909), t. VIII, 23.

Dutch New-Guinea: Nassau-mountains, 1200 m., primeval forest. (W. M. DOCTERS VAN LEEUWEN n. 11029, October 1926; "flowers white").

The spur is more curved than in the type specimen.

Calanthe Eugleriana Krzl. in Schum. et Laut. Nachtr. Fl. D. Schutzgeb. Südsee (1905), 142; J. J. S. in Nova Guinea VIII (1909), 24, t. VIII, 24; Schltr. in Orch. D. N. Guinea (1912), 380; Fig. Atl. t. CXXXIII, Nr. 501. — *C. veratrifolia* R. Br. var. Schltr. in Schum. et Laut. Nachtr. Fl. D. Schutzgeb. Südsee (1905), 145.

Dutch New-Guinea: Van Rees-mountains, Van Gelderen-river, 100 m., primeval forest. (W. M. DOCTERS VAN LEEUWEN n. 9219, May 1926). Rouffaer-river, 175 m., hills, primeval forest. (W. M. DOCTERS VAN LEEUWEN n. 10005, August 1926). Meervlakte, Rouffaer-river, Motor-bivouac, 100 m., primeval forest. (W. M. DOCTERS VAN LEEUWEN n. 11121, November 1926).

Spathoglottis Bl.

Spathoglottis wariana Schltr. Orch. D. N. Guinea (1912), 399; Fig. Atl. t. CXXXX, Nr. 526.

Dutch New-Guinea: Mamberamo, opposite Albatros-bivouac, 75 m., barren rocky ground under shrubs, locally common. (W. M. DOCTERS VAN LEEUWEN n. 9564, July 1926; "flowers usually lilac, now and then white"). Albatros-bivouac, 100 m., open stony places in the forest. (W. M. DOCTERS VAN LEEUWEN n. 11346, November 1926; "flowers lilac"). Rouffaer-river, 175 m., hills, common amongst the glagah. (W. M. DOCTERS VAN LEEUWEN n. 10103, "flowers violet"; n. 10104, "flowers white"; August 1926).

It is at the time almost impossible to distinguish in a satisfactory way the species allied to *S. plicata* Bl. A revision is necessary but this requires a very abundant material from a large number of growing places and flowers preserved in alcohol.

According to my opinion *S. wariana* Schltr. and *S. papuana* Bail. var. *puberula* Schltr. cannot be maintained next to one another, an opinion which is shared by Dr. MANSFELD, who compared the material.

Spathoglottis Doctersii J. J. S. n. sp.

Tab. IV, 6.

Planta parva. Pseudobulbi approximati, 4—5-folii, basi vaginati. Folia lanceolato-linearita, apicem versus sensim longe angustata, basi sensim in petiolum angustata, nervis supra subtusque prominentibus, glabra, sicco firmiter papyracea, c. 17—38.5 cm. longa, 0.85—1.9 cm. lata; petiolus cum vagina articulatus, canaliculatus, costatus, c. 2—12 cm. longus; vagina costata, 5—8 cm. longa. Inflorescentiae laxius pluriflorae, pedunculo glabro, c. 30—50 cm. longo, vaginulis c. 5 tubulosis donato, rachide tortuosa, glabra, c. 8 cm. longa. Bractae parvae, patentes,

pedicellum amplexantes, concavae, suborbiculares, glabrae, c. 0.85 cm longae, 0.75 cm. latae. Flores quaquaversi, mediocres, glabri. Sepalum dorsale oblongum, apice contractum, obtusum, c. 7-nerviis, fere 2.1 cm. longum, 0.83 cm. latum. Sepala lateralia oblique oblongo-elliptica, obtusa, 7-nervia, c. 1.8 cm. longa, 0.8 cm. lata. Petala oblique oblongo-elliptica, obtusa, 3-nervia, nervis exterioribus ramosis, bene 2 cm. longa, 0.85 cm. lata. Labellum 3-partitum, expansum c. 1.25 cm. longum, 1.65—1.8 cm. latum; lobi laterales oblique oblongo-subspathulati, falcato-incurvi, apicem versus sensim dilatati, obtusi, c. 0.75—0.8 cm. longi, superne 0.36—0.375 cm. lati; lobus intermedius e basi brevissime contracta ambitu ovatus, $\frac{2}{5}$ partibus superioribus contractus, rotundatus, 5-nerviis, callo glabro alte in lobos 2 oblique quadrangulos apicem versus sensim paulum dilatatos partito in basi, basi in utraque calli parte nonnullis pilis donatus, c. 0.95 cm. longus, inferne 0.5—0.54 cm. latus, parte contracta c. 0.3—0.33 cm. longa, fere 0.4—0.36 cm. lata. Gynostemium curvulum, alatum, ala apicem versus sensim dilatata, bene 1 cm. longum, clinandrio cucullato, apice incurvo, pede abbreviato. Rostellum e basi dilatata contractum, obtusum. Ovarium pedicellatum glabrum, c. 2.6 cm. longum.

Dutch New-Guinea: Rouffaer-river, 175 m., hills, primeval forest, open spot near a cascade. (W. M. DOCTERS VAN LEEUWEN n. 10124, August 1926; "flowers outside, lip and column beautifully bright violet, inside light violet, lip at base yellow and white").

This species is allied to *S. stenophylla* Ridl., *S. parviflora* Krzl., *S. albida* Krzl. and *S. erectiflora* Schltr. but at once characterized by the ovate midlobe contracted at the top.

Description from herbarium.

var. **emarginata** J. J. S. n. var.

Differt a forma typica labelli lobo intermedio ambitu subovato-rhombeo, apice contracto-producto, emarginato.

Dutch New-Guinea: Rouffaer-river, confluent C, 250 m., amongst stones on the river-bank. (W. M. DOCTERS VAN LEEUWEN n. 10253, September 1926; "flowers dark red").

Microstylis Nutt.

Sect. *Pseudoliparis*.

Microstylis tubulosa J. J. S. in Bull. Dép. Agric. Ind. Néerl. V (1907), 1; in Nova Guinea VIII (1909), 35, t. XI, 36. — *Malaxis tubulosa* Ames Orch. V (1915), 68.

Dutch New-Guinea: Rouffaer-river, 175 m., hills, primeval forest. (W. M. DOCTERS VAN LEEUWEN n. 9795, August 1926; "flowers light orange, lip dark orange, top of column blue").

Microstylis Zippelii J. J. S. in Bull. Dép. Agric. Ind. Néerl. XXXIX (1910), 17; etc.

Dutch New-Guinea: Rouffaer-river, 175 m., hills, primeval forest. (W. M. DOCTERS VAN LEEUWEN n. 9793, August 1926; "flowers yellowish brown, lip darker, auricles of column blue").

Sect. *Crepidium*.

Microstylis retusa J. J. S. in Bull. Dép. Agric. Ind. Néerl. XIX (1908), 29; in Nova Guinea VIII (1909), 33, t. XI, 34.

Dutch New-Guinea: Nassau-mountains, Upper Rouffaer-river, Exploration-bivouac, 700 m., primeval forest. (W. M. DOCTERS VAN LEEUWEN n. 11165, November 1926; "stem and petioles purple, leaves bronze-coloured with lighter stripes above, green with red nerves beneath").

Microstylis protracta J. J. S. n. sp.

Tab. IV, 7.

Caulis e basi decumbente radicante adscendens, post florescentiam e parte superiore ramulum emittens, ad c. 20 cm. longus, ad c. 10-folius. Folia oblique ovato-lanceolata, sensim longe acuminata, acuta, minute undulata, nervis majoribus c. 3—4 subtus prominentibus, sicco membranacea, c. 2.7—7.2 cm. longa, 0.95—1.6 cm. lata; petiolus canaliculatus, cum vagina tubulosa c. 1.6—2.3 cm. longus. Inflorescentia laxe multiflora, pedunculo c. 6—7 cm. longo, vaginula singula bracteiformi donato, rachide anguste alata, ad c. 8.75 cm. longa. Bractee reflexae, basi convexae, ceterum leviter concavae, lanceolato-triangularae, acutiusculae, 1-nerviae, c. 0.4 cm. longae, 0.13 cm. latae. Flores patentissimi, parvi, bene 0.4 cm. longi, 0.26 cm. lati, sepalis petalisque valde recurvis. Sepalum dorsale oblongum, obtusum, valde convexum, 3-nervium, c. 0.26 cm. longum, 0.13 cm. latum. Sepala lateralia oblique late ovata, obtusa, valde convexa cum loculo concavo, 3-nervia, c. 0.225 cm. longa, 0.16 cm. lata. Petala oblique lineari-oblonga, obtusa, vix retusa, valde convexa, 1-nervia, bene 0.2 cm. longa, 0.06 cm. lata. Labellum hippocrepidiforme, apice incurvulum, marginibus ad basin lobi intermedii recurvis, fovea longitudinali oblonga dorso convexa antice incrassatione V-formi limitata, callo parvo transverso ad basin, expansum c. 0.4 cm., usque ad locum insertionis fere 0.25 cm. longum, 0.3 cm. latum, lobo intermedio producto, quinquangulato-ovato, bidentato cum dentibus oblique triangularibus contiguis vix tegentibus bene 0.1 cm. longo, 0.125 cm. lato, dentibus 2—3 multo minoribus angustè triangularibus acutis et lobulo obtuso utrinque, auriculis remotis oblique triangularibus parallelis anguste obtusis c. 0.15 cm. longis, basi 0.1 cm. latis. Gynostemium a dorso compressum, dorso paululum infra medium leviter obtusangule incurvulum, quadrangulum, apicem versus paululum dilatatum, c. 0.125 cm. longum, 0.1 cm. latum, clinandrio semiorbiculari, auriculis leviter divergentibus, obtusis, non truncatis. Anthera plano-cucullata, transverse quinquangularis, obtusissima, c. 0.05 cm. lata. Rostellum transversum, auriculis brevius, leviter late retusum. Ovarium pedicellatum 6-costatum, c. 0.43 cm. longum.

Dutch New-Guinea: Nassau-mountains west, 1500 m., primeval forest. (W. M. DOCTERS VAN LEEUWEN n. 10972, October 1926; "stem, leaves beneath and flowers violet").

In the way of *M. vinicolor* Schltr. but differing in the smaller sepals, the producted midlobe with the teeth somewhat overlapping, and the very different anther.

Description from herbarium and flowers preserved in alcohol.

var. **brevidens** J. J. S. n. var.

Differt a forma typica labelli dentibus distincte brevioribus et colore florum.

Dutch New-Guinea: Nassau-mountains west, 1500 m., primeval forest. (W. M. DOCTERS VAN LEEUWEN n. 10931, October 1926; "stem and peduncle violet, flowers green").

Microstylis verruculosa J. J. S. n. sp.

Tab. V, 8.

Rhizoma sicco durum, c. 4—7.5 cm. longum. Pseudobulbi approximati, sicco duri, in vivo verisimiliter carnosì, c. 3—5 cm. longi, 4—5-folii. Folia erecto-patentia, oblique saepe plus minusve ovato-elliptica, sensim longe acuminata, acuta, basi obliqua in petiolum contracta,

nervis c. 5 subtus prominentibus, sicco membranacea, ad c. 4.5—12 cm. longa, 1—2.7 cm. lata; petiolus canaliculatus, cum vagina 2—3 cm. longus. Inflorescentia laxe multiflora, pedunculo c. 9.5—11 cm. longo, vaginulis 1—2 bracteiformibus donato, rachide anguste alata, 22 cm. superante. Bractee reflexae, subulatae, ad c. 0.4—0.5 cm. longae. Flores c. 0.8 cm. longi, 0.6 cm. lati. Sepalum dorsale deorsum spectans, valde convexum, interdum loculo concavo ad apicem, anguste oblongum, obtusum, 3-nervium, c. 0.525 cm. longum, 0.17 cm. latum. Sepala lateraliter divergentia, angulum obtusum facientia, valde convexa, interdum parte superiore valde concava, oblique oblonga, falcata, obtusa, 3-nervia, c. 0.43 cm. longa, fere 0.2 cm. lata. Petala supra basin angulato-incurvam decurva, divergentia, convexa, oblique linearia, obtusa, retusa, 1-nervia, fere 0.5 cm. longa, 0.075 cm. lata. Labellum hippocrepidiforme, apice trilobum cum margine incurvulo, fovea longitudinali alte excavata dorso convexa oblonga vallo hippocrepidiformi lato convexo cum fovea minute verruculoso-papilloso dorso concavo limitata, lamella transversa aequilateraliter trapeziformi retusa gynostemio adpresso ad basin, expansum ambitu absque lobo intermedio quadratum, cum lobo intermedio quinquangulare, totum c. 0.525 cm., absque auriculis 0.35 cm. longum, 0.425 cm. latum, lobo intermedio laterales bene superante, triangulo, marginibus incurvulis leviter incrassato, apice minutissime bidentato, c. 0.075 cm. longo, 0.125 cm. lato, lobis lateralibus vix productis rotundatis brevissime acute 3-dentatis cum lobulo minuto obtuso plerumque addito, cum lobo intermedio angulum obtusum facientibus, auriculis remotis, divergentibus, marginibus exterioribus parallelis, oblique triangularibus, anguste obtusis. Gynostemium cum ovario angulum obtusum faciens, majusculum, a dorso compressum, oblongo-quadrangulum, apice paululum dilatatum, lateribus concavis, c. 0.17 cm. longum, auriculis divergentibus oblongis truncatis verticalibus. Anthera plano-cucullata, transverse sexangulato-reniformis, apice truncata, c. 0.07 cm. lata. Pollinia 4, in corpuscula 2 oblique obovata a dorso compressa unita, cum glandula spuria c. 0.05 cm. longa. Rostellum auriculis distincte brevius, triangulo-bilobulum. Ovarium 0.2 cm. longum, cum pedicello 0.5 cm. longo conspicue 6-costatum. Capsula erecta, immatura 1.4 cm. longa, pedicello 0.7 cm. longo.

Dutch New-Guinea: Nassau-mountains west, 1500 m., primeval forest. (W. M. DOCTERS VAN LEEUWEN n. 11012, October 1926; "flowers green").

In the papillose fovea of the lip this recalls *M. pubicallosa* Schltr. from which it is, however, manifestly distinct in the smaller leaves, the rotundate, very shortly dentate side lobes and the triangular, minutely bidentate midlobe of the lip.

Description from herbarium and flowers preserved in alcohol.

Oberonia Lndl.

Sect. Labidous.

Oberonia reversidens J. J. S. n. sp.

Tab. V, 9.

Caules approximati, elongati, serpentine, compressi, foliis decurrentibus alati, c. 8.5—16 cm. longi, 0.3—0.4 cm., cum foliis 0.7—1 cm. lati, internodiis c. 0.75—1 cm. longis, radicibus tenuibus. Folia c. 13—19, parva, inarticulata, erecto-patentia, lateraliter compressa, supra ad basin vaginaceo-fissa, anguste triangula, incurvula, acuta vel in apiculum acuminata, supra c. 1.1—1.5 cm. longa, 0.325—0.4 cm. lata. Inflorescentia dense multiflora, cylindrica, superne

laxa, cum floribus fere 0.4 cm. diam., pedunculo c. 1 cm. longo, nonnullis vaginulis foliaceis donato, rachide anguste multialato-angulata, c. 4.1 cm. longa. Bractee adpressae, concavae, oblongo-triangularae, acutae, vix irregulariter marginatae. Flores patentes, bene 0.1 cm. lati, fere 0.2 cm. longi, sepalis petalisque valde revolutis. Sepala subovato-triangularia, obtusa, c. 0.075 cm. longa, 0.06 cm. lata, lateralia obliqua. Petala oblique linearia, obtusa, fere 0.1 cm. longa, vix 0.025 cm. lata. Labellum porrectum, 3-lobum, 3-nervium, fere 0.2 cm. longum, ad lobos laterales 0.1 cm. latum; lobi laterales (auriculae) reversi, falcato-incurvi, gynostemium amplectentes, angulato-convexi, oblique oblongi, apice obtuso contigui, margine interiore irregulariter marginati, c. 0.075 cm. longi; lobus intermedius cum lateralibus angulos obtusos faciens, vix incurvulus, orbicularis vel subovalis, apice distincte rotundato-bilobulus cum dente brevi reverso triangulo in sinu, omnino erecto-patenter lacinulato-serratus, c. 0.1—0.125 cm. longus, bene 0.1 cm. latus. Gynostemium minimum. Anthera cucullata, aequilateraliter rotundato-trapeziforme, apice lato abrupte in apiculum triangulum producta. Ovarium pedicellatum c. 0.08 cm. longum. Capsula subovalis, trigonum, 6-costatum, bene 0.3 cm. longum, pedicello 0.1 cm. longo.

Dutch New-Guinea: Mamberamo, Albatros-bivouac, 50 m., swampy forest, epiphytcal. (W. M. DOCTERS VAN LEEUWEN n. 9433, July 1926; "flowers orange red").

Differing from *O. kaniensis* Schltr. in the colour of the flowers, the longer midlobe serrate along the whole margin and provided with a tooth in the apical notch, the shorter ovary, from *O. anguina* Schltr. in the distinctly bilobed wholly serrate midlobe, the lateral lobes irregularly sinuate on the inner margin and the nearly entire bracts. In *O. pachyambon* Schltr. the midlobe is also entirely serrate but in this species the leaves are much larger and the apex of the lip not distinctly bilobed.

Description from herbarium and flowers preserved in alcohol.

Sect. *Platystreptus*.

Oberonia fallax J. J. S. n. sp.

Tab. V, 10.

Caules approximati, elongati, laxe serpentine, compressi, foliis decurrentibus late alati, c. 15 cm. longi, ad 0.55 cm. lati, c. 7-folii, internodiis ad 3 cm. longis. Folia inarticulata, erecto-patentia, incurvula, leviter sigmoidea, lineari-lanceolata, acuta, basi supra vaginaceo-fissa, mediana maxima, supra usque ad vaginam tubulosam valde compressam ad c. 5.5 cm. longa, 0.65 cm. lata. Inflorescentia dense multiflora, cylindrica, c. 0.75—0.8 cm. diam., rachide c. 5.3 cm. longa, anguste alata, alis minute lacinulatis. Bractee adpressae, concavae, oblongae, subulato-apiculatae, irregulariter eroso-laceratae, c. 0.23 cm. longae, fere 0.1 cm. latae. Flores patentissimi, c. 0.325 cm. lati, 0.275 cm. longi, sepalis petalisque patentissimis, glabris. Sepalum dorsale oblongum, brevissime acutatum, convexum, 1-nervium, c. 0.15 cm. longum, fere 0.06 cm. latum. Sepala lateralia divergentia, angulum obtusum facientia, recurvula, convexa, oblique oblonga, obtusa, 1-nervia, c. 0.13 cm. longa, 0.075 cm. lata. Petala oblique anguste lanceolata, apicem versus vix dilatata, obtusiuscula, leviter angulato-concava, 1-nervia, c. 0.175 cm. longa, 0.05 cm. lata. Labellum cum ovario angulum acutum faciens, leviter concavum, oblongo-panduratum, e basi cordato-ovata auriculis 2 parvis reversis rotundatis vix incurvulis gynostemium semi-amplectente medio fere leviter longe constrictum, apice minus dilatato in lobulos 2 triangulos

obtusos porrectos sinu latiusculo sejunctos productum, 3-nervium, excavatione levi ad basin, totum c. 0.15 cm. longum, basi 0.075 cm., medio 0.04 cm., apice bene 0.05 cm. latum. Gynostemium brevissimum, dorso convexum, apice truncatum, clinandrio conspicuo, excavato, transverse subovali. Anthera cucullata, transverse oblonga. Rostellum porrectum, triangulum, obtusum. Stigma transversum. Ovarium lineis 6 vix prominulis valde obsolete incisis post fecundationem in alas angustos parce lacinulatas auctis instructum, cum pedicello 0.25 cm. longum.

Dutch New-Guinea: Rouffaer-river, 125 m., hills, primeval forest, epiphytical on the trunk of a small tree. (W. M. DOCTERS VAN LEEUWEN n. 9739, August 1926; "flowers light cream-yellow").

Same locality, 175 m. (W. M. DOCTERS VAN LEEUWEN n. 9825, August 1926; only in fruit).

In the shape of the flower this very closely resembles *O. papillosa* Schltr. I have kept it apart because of the much longer stems and leaves, the colour of the flowers, the not papillose sepals and the fecondated ovary being provided with 6 lacinulate, narrow wings. Moreover *O. papillosa* grows at a much higher altitude.

According to the kind information of Dr. R. MANSFELD of the Berlin Herbarium the ovary is in *O. papillosa* Schltr. not regularly papillose, but the papillae, partly rather hairlets, are arranged in 6 longitudinal rows on low ridges with a few also scattered between the ridges. In *O. fallax*, I think, cannot be spoken of papillae.

It is not quite sure that n. 9825 belongs here as there are no flowers. The stems are still longer, viz. 23.5 cm., the leaves up to 8 cm. long and 0.925 cm. wide.

Description from herbarium and flowers preserved in alcohol.

Sect. Otoglossum.

Oberonia linearis Schltr. Orch. D. Neu-Guinea (1911), 164; Fig. Atl. t. LXIV, Nr. 227; etc.

Dutch New-Guinea: Rouffaer-river, confluent C, 250 m., primeval forest, epiphytical near the ground. (W. M. DOCTERS VAN LEEUWEN n. 10444, September 1926; "flowers orange red").

Oberonia plumea J. J. S. n. sp.

Tab. V, 11.

Pusilla. Caulis brevis, c. 0.7—1.7 cm. longus, 5—6-folius, basi radicans, radicibus tenuibus. Folia subpatentissima, brevia, oblique oblongo-triangularia, obtusa, basi supra vaginaceo-fissa, carnosa, tota c. 1—2.3 cm. longa, parte non fissa c. 0.36—0.4 cm. alta. Inflorescentia laxa, multiflora, pedunculo filiformi, c. 0.8—1 cm. longo, pluribus vaginulis adpressis bracteiformibus donato, rachide tenui, angulata, c. 1.3—3.7 cm. longa, cum floribus c. 0.5—0.6 cm. diam. Bracteae adpressae, concavae, oblongo-triangularae, acuminatae, irregulariter marginatae, c. 0.12 cm. longae. Flores in pseudoverticillos 6—7-meros 0.3—0.4 cm. distantes dispositi, patentissimi, parvi, c. 0.2 cm. longi, sepalis valde revolutis. Sepalum dorsale ovato-triangulum, acutiusculum, c. 0.075 cm. longum, 0.05 cm. latum. Sepala lateralia late oblique ovato-triangularia, obtusa, c. 0.07 cm. longa et lata. Petala erecta, divergentia, angulum acutum facientia, sepalis multo majora, e basi cuneata ambitu oblonga, basi excepta pectinata, laciniis linearibus subirregularibus papillosis versus apicem accrescentibus praesertim apicalibus elongatis, concava, 1-nervia, fere 0.2 cm. longa, bene 0.08 cm. lata. Labellum parvum, cum gynostemio angulum acutum fere rectum faciens, incurvulum, concavum, leviter 3-lobum, fovea majuscula suborbiculari ad basin, breviter 3-nervium, explanatum ambitu triangulum obtusumque, fere quadran-

gulum, c. 0.1 cm. longum, ad lobos laterales aequilatum; lobi laterales basiliares, subadscendentes, parvuli, oblique subquadranguli, serrulati ad breviter lacinulati; lobus intermedius multo major, cum lobis lateralibus angulos obtusos faciens, ambitu subovato-quadrangulus, apicem versus angustatus, obtusus, irregulariter serrulatus ad sublacinulatus, c. 0.07 cm. longus, bene 0.05 cm. latus. Gynostemium breve, in utraque stigmatis parte dilatatum, apice excisum, c. 0.05 cm. longum, auriculis quadrangulis truncatis. Anthera cucullata, orbicularis. Rostellum porrectum, quadrangulum, truncatum. Stigma suborbiculare. Ovarium brevissimum, glabrum, c. 0.025 cm. longum; pedicellus bene 0.1 cm. longus.

* Dutch New-Guinea: Mamberamo, Albatros-bivouac, 50 m., swampy forest, epiphytical. (W. M. DOCTERS VAN LEEUWEN n. 9434, July 1926; "flowers orange, lip yellow").

A very distinct little species, which, according to the shape of the lip, seems to be allied with *O. Finisterrae* Schltr.

Description from herbarium and material preserved in alcohol.

Hippeophyllum Schltr.

Hippeophyllum papillosum Schltr. Orch. D. N. Guinea (1911), 180; Fig. Atl. t. LXX, Nr. 253.

Dutch New-Guinea: Rouffaer-river, 175 m., hills, epiphytical in primeval forest. (W. M. DOCTERS VAN LEEUWEN n. 9991, August 1926; "flowers yellowish green").

Dr. MANSFELD kindly compared this plant with SCHLECHTER's type specimen and affirmed my determination.

Liparis L. C. Rich.

Sect. *Blepharoglossum*.

Liparis condylobulbon Rchb. f. in Hamb. Gartenr. 1862, 34; J. J. S. in Bull. Jard. Bot. Buit. 3e sér. IX (1928), 484; etc.

var. **papuana** J. J. S. l. c. 485.

Dutch New-Guinea: Mamberamo, Marine-falls, 60 m., river bank, epiphytical. (W. M. DOCTERS VAN LEEUWEN n. 9675, July 1926; "flowers light green, lip yellow"). Rouffaer-river, 175 m., primeval forest, epiphytical. (W. M. DOCTERS VAN LEEUWEN n. 9826, August 1926; "flowers very light green, lip yellow"). Same locality, Splitsings-bivouac, 65 m., river bank, epiphytical. (W. M. DOCTERS VAN LEEUWEN n. 9722, August 1926; "flowers cream-coloured, lip orange").

Liparis persimilis Schltr. Orch. D. N. Guinea (1911), 206; Fig. Atl. t. LXXVIII, Nr. 286.

Dutch New-Guinea: Nassau-mountains, Exploration-bivouac, 1000 m., epiphytical in secondary forest. (W. M. DOCTERS VAN LEEUWEN n. 10717, October 1926; "flowers light yellow").

The material is not very good and nearly out of flower, and the determination therefore not quite sure.

Sect. *Distichon*.

Liparis pseudo-disticha Schltr. in Schum. et Laut. Nachtr. Fl. D. Schutzgeb. Südsee (1905), 106; Fig. Atl. t. LXXXI, Nr. 296; J. J. S. in Nova Guinea VIII (1909), 38, t. XIII, 41.

Dutch New-Guinea: Meervlakte, Rouffaer-river, Motor-bivouac, 100 m., epiphytical in bank forest. (W. M. DOCTERS VAN LEEUWEN n. 11083, November 1926; "flowers yellow, lip orange").

I have little doubt as to the correctness of the determination. Dr. R. MANSFELD, who kindly compared the plant with SCHLECHTER's type specimen, was of the same opinion.

Liparis arrigens J. J. S. n. sp.

Tab, V, 12.

Rhizoma repens, elongatum; vaginis tubulosis acuminatis carinatis superioribus pseudobulbum includentibus ad c. 3.5—5.5 cm. longis. Pseudobulbi c. 2—2.5 cm. dissiti, parvi, ovati, sicco c. 0.8 cm. longi, 1-folii. Folium articulatum, lineare, apice conduplicatum, acutum, basi paululum angustatum conduplicatumque, nervis majoribus c. 5 sicco subtus prominentibus, papyraceum, c. 20—28 cm. longum, 0.7—0.875 cm. latum; vagina tubulosa, compressa, anceps, petioliformis, c. 1.3—2.7 cm. longa. Inflorescentia apice dense multiflora, diu-flores gignens, disticha, pedunculo bialato-ancipiti, c. 19—24.5 cm. longo, 0.125 cm. lato, rachide compressa, 6.5 cm. superante, cum bracteis c. 0.8 cm. lata, internodiis c. 0.1 cm. longis. Bractee alternatim bifariae, patentes, conduplicato-cymbiformes, incurvulae, valde carinatae, inexpancae lanceolatae, acutae, c. 0.55—0.575 cm. longae. Flores intervallis florentes, c. 0.55 cm. lati, 0.8 cm. longi, sepalis valde reflexis convexis. Sepalum dorsale oblongo-ellipticum, obtusum, brevissime obtuse apiculatum, basi latum, 3-nervium, costa media supra leviter canaliculata dorso prominula, c. 0.5 cm. longum, 0.23 cm. latum. Sepala lateralia oblique ovalia, obtusa, breviter apiculata, basi lata, 3-nervia, costa media supra inconspicue canaliculata dorso praesertim versus apicem prominente, c. 0.5 cm. longa, 0.275 cm. lata. Petala erecto-patentia, divergentia, angulum acutum facientia, recta, oblique subspathulato-linearia, apicem versus sensim leviter dilatata, obtusa, leviter convexa, 1-nervia, c. 0.45 cm. longa, superne 0.1 cm. lata. Labellum basi erecta gynostemio adpressum, in fere $\frac{1}{3}$ supra basin abrupte deflexum, in flexu utrinque plicam introrsam transversam valde convexam margine incurvulam formans, callo conspicuo transverso rotundato-quadrangulo medio in lobulum parvum obtusum producto antice medio perforato ad basin, callis 2 collateralibus multo minoribus obtuse triangulis antepositis, inexplatum fere usque ad medium angustatum, dimidio superiore in lobum semiovalet abrupte breviter obtuse acuminatam convexam papillosam obtusangule contractum, inexpansum 0.45 cm. longum, basi 0.28 cm., apice fere 0.2 cm. latum. Gynostemium obtusangule inclinaturn, rectum, dorso obtusangule costiforme, utrinque late patentissime rotundato-carnoso-alatum, $\frac{1}{3}$ parte superiore abrupte contractum, basi ovario multo latius, dente verticali oblique triangulo acuto in utraque stigmatis parte, cum anthera c. 0.225 cm. longum, fere 0.2 cm. latum, clinandrio transverso excavato pariete postico leviter exciso-truncato. Anthera cucullata, angulato-orbicularis, apice truncata, basi minute gibbosa, c. 0.075 cm. lata. Pollinia 4, in corpuscula 2 oblique ovalia unita. Stigma transverse rotundato-quadrangulum. Ovarium c. 0.15 cm. longum, cum pedicello 1.1 cm. longo 6-costulatum.

Dutch New-Guinea: Nassau-mountains, Exploration-bivouac, 700 m., epiphytial in primeval forest. (W. M. DOCTERS VAN LEEUWEN n. 10524, October 1926; "flowers orange").

This species which resembles *L. anemophila* Schltr. and *L. pseudodisticha* Schltr. in the shape of the lip and column differs in the blunt petals and the colour.

Description from herbarium and flowers preserved in alcohol.

Glomera Bl.

Sect. Euglomera.

Glomera retusimentum J. J. S. n. sp.

Tab VI, 13.

Caulis elongatus, sectione transversa ellipticus, simplex(?), radicans, parte adest 60 cm. longa, sicco 0.25 cm. latus, internodiis c. 1.7—2.6 cm. longis. Folia patentia, lanceolato-lineariter, apicem versus angustata, apice inaequaliter obtuse ad rotundato-bilobula, costa media supra sulcata subtus vix prominula, coriacea, c. 5.25—9 cm. longa, 1—1.1 cm. lata; vaginae tubulosae, compressae, sectione transversa anguste ellipticae, apice in dentem laminae oppositum brevem latum adpressum exeuntes, nervis longitudinalibus tenuiter prominentibus, minute transverse rugulosae, internodia superantes. Inflorescentia capituliformis, valde nutans, paululum elongata, pauciflora, secunda, vaginulis inferioribus magnis, valde concavis, orbiculari-ovatis, apice angustatis conduplicatisque, obtusis, carinatis, carina apiculatis, inexpandis c. 1.1 cm. longis. Bractae infimae vaginulis fere aequimagnae, orbiculares, valde concavae, magis membranaceae, superiores minores et angustiores. Flores c. 8, c. 0.9 cm. longi, sepalo dorsali petalisque sepalum dorsale superantibus. Sepalum dorsale supra basin incurvum, oblongum, obtusum, dorso infra apicem longius subulato-apiculatum, 5-nervium, c. 0.95 cm. longum, 0.35 cm. latum. Sepala lateraliter alte connata, basi mentum saccatum reversum ovario adpressum breve latum retuso-bilobulum c. 0.17 cm. longum formantia, 5-nervia, oblique falcato-triangularia, expansa una suborbicularia, bene 0.7 cm. longa, 0.75 cm. lata, apice libero oblique rotundato-triangulari, obtuso, dorso infra apicem longius subulato-apiculato, c. 0.1 cm., cum mucrone 0.15 cm. longo. Petala basi incurva, oblique subspathulato-oblonga, apice rotundato-truncata, 5- vel subquiquenervia, concava, c. 0.95 cm. longa, 0.38 cm. lata. Labellum basi tantum gynostemio adnatum, breviter saccatum, totum 0.45 cm., usque ad apicem ovarii 0.375 cm. longum, parte gynostemio adnata 0.06 cm. longa, lamina sinu subrectangulato a gynostemio sejuncta, gynostemium bene superante, recurvula, basi costa conspicua transversa a calcaribus separata, expansa transverse quadrangulari, apice truncata, angulis rotundata medio vix obtuse producta, basi breviter angustata, c. 0.23 cm. longa, 0.26 cm. lata; calcar reversum, cum ovario angulum obtusum faciens, ovario multo brevius, ample oblique ovali-conicum, paululum lateraliter compressum, obtusum, dorso 0.2 cm. longum. Gynostemium breve, subtus $\frac{1}{3}$ longitudinis labello adnatum, dorso convexum, c. 0.225 cm. longum, clinandrium excavato triangulari, pariete postico aequilateraliter trapeziformi apice denticulato, auriculis oblique triangularibus, subulato-acuminatis, margine antico rotundato-dilatatis, margine postico minute denticulatis. Anthera cucullata, ambitu orbicularis, apice tenuiter marginata retusaque, basi conico-gibbosa cum sulco postico, c. 0.125 cm. lata. Pollinia 4, compressa, oblique obovata, glandula utrinque dente triangulari falcato instructa. Rostellum porrectum, auriculis aequilongum, latum, late retusum, breviter rotundato-bilobulum, cum stigmatis margine inferiore late rotundato bilabiatum. Ovarium pedicellatum leviter 6-sulcatum, 0.625 cm. longum.

Dutch New-Guinea: Mamberamo, Albatros-bivouac, 100 m., edge of hills, epiphytically in primeval forest. (W. M. DOCTERS VAN LEEUWEN n. 11335, November 1926; "flowers white, lip orange").

In the way of *G. subracemosa* J. J. S., *G. aurea* Schltr., *G. similis* J. J. S., *G. palustris*

J. J. S., *G. sublaevis* J. J. S., *G. secunda* J. J. S., but especially recalling *G. sublaevis* J. J. S., from which it differs in the small inflorescence, retuse mentum, narrower sepals, subspathulate petals, shorter limb of the lip. It is to be noted, however, that the material is very poor.

Description from a single dried branch the inflorescence of which was preserved in alcohol.

Sect. Glossorhyncha.

Glomera inconspicua J. J. S. n. sp.

Tab. VI, 14.

Caules approximati, ramosi, tenues, sectione transversa elliptici, ad c. 23 cm. longi, internodiis ad c. 0.4—0.5 cm. longis, radicibus tenuibus tortilibus. Folia parva, patentia, ovato-lanceolata ad oblongo-ovata, apicem versus angustata, obtusa, inaequaliter obtuse bilobulata, basi brevissime petiolato-contracta, crasse carnosa, utrinque convexa, utrinque sparse punctata, c. 0.775—0.875 cm. longa (in spiritu vini), 0.25 cm. ad fere 0.3 cm. lata, pedicello 0.05—0.07 cm. longo; vaginae tubulosae, internodia aequantes, longitudinaliter prominenter nervosae, sparse minute verruculosae punctataeque, apice longe ciliatae, ciliis inaequalibus, tenuibus, pallidis, erectis ad patentissimis, ad c. 0.25 cm. longis. Inflorescentia terminalis, 1-flora, vaginula exteriore ovarium mentumque omnino includente, basin sepali dorsalis superante, oblique infundibuliformi, rotundata, obtuse apiculata, extus longe muriculata, furfuraceo-punctata, 3-nervia, membranacea, c. 0.4 cm. longa. Bractea vaginulae subsimilis sed angustior, subulato-acuminata, emuriculata, parce furfuraceo-punctata, 1-nervia, membranacea, c. 0.4 cm. longa. Flos parvus, c. 0.6 cm. latus, sepalis petalisque patentissimis. Sepalum dorsale oblongum, obtusum, breviter apiculatum, 3-nervium, c. 0.375 cm. longum, 0.15 cm. latum. Sepala lateralia basi brevissime connata, basin calcaris amplectentia, oblique oblonga, versus apicem leviter angustata, falcata, obtusa, obtuse apiculata, apiculo parce denticulato, 3-nervia, margine postico c. 0.34 cm., margine antico c. 0.4 cm. longa, c. 0.15 cm. lata. Petala divaricata, obovato-lanceolata, apice angustata, obtusa, subplana, 3-nervia, c. 0.37 cm. longa, superne 0.125 cm. lata. Labellum gynostemio alte adnatum, longius calcaratum, usque ad apicem ovarii 0.25 cm. longum, parte gynostemio adnata fere 0.1 cm. longa, lamina basi marginibus erectis concava, apice recurva, incrassata sed basi non abrupte terminante, expansa triloba c. 0.225 cm. longa, 0.23 cm. lata, lobis lateralibus rotundatis minute irregulariter marginatis cum lobo intermedio angulum obtusum facientibus, lobo intermedio triangulo acuto 0.08 cm. longo, 0.1 cm. lato; calcar reversum, ovario adpressum, rectum, cylindricum, obtusum, 0.23 cm. longum. Gynostemium breve, crassum, dorso convexum et medio leviter constrictum, antice magnam partem labello adnatum, c. 0.13 cm. longum, clinandrio transverso, excavato, pariete postico rotundato irregulariter lacinulato, auriculis dentiformibus. Rostellum magnum, initio porrectum concavumque, deinde recurvum lateribus convexum gynostemium paulo brevius. Stigma concavum, margine inferiore valde producto initio rostello adpresso deinde recurvo margine lato incurvo apice canaliculato contracto minutissime erosulo tenuiter membranaceo. Ovarium crassiusculum, curvulum, 6-sulcatum, furfuraceum, c. 0.25 cm. longum; pedicellus brevissimus, c. 0.07 cm. longus.

Dutch New-Guinea: Mamberamo, Albatros-bivouac, 150 m., hill ridge, epiphytical in thin forest. (W. M. DOCTERS VAN LEEUWEN n. 9069, May 1926; "flowers white").

Amongst the species with the smallest flowers this is well characterized by the long,

partly patent ciliae of the leaf-sheaths; the narrow petals, the not abruptly thickened limb of the lip, the long spur and the very strongly developed lower margin of the stigma.

Description from herbarium and materials preserved in alcohol.

Glomera uniflora J. J. S. in Bull. Dép. Agric. Ind. Néerl. XIX (1908), 25; in Nova Guinea VIII (1909), 43, t. XV, 49; etc.

Dutch New-Guinea: Rouffaer-river, confluent C, 250 m., epiphytical in primeval forest. (W. M. DOCTERS VAN LEEUWEN n. 10251, September 1926; "flowers white").

Glomera ?dependens J. J. S. in Bull. Jard. Bot. Buit. 2e sér. VIII (1912), 13. — *Glossorhyncha dependens* Schltr. Orch. D. N. Guinea (1912), 306.

Dutch New-Guinea: Nassau-mountains west, 1500 m., epiphytical in primeval forest. (W. M. DOCTERS VAN LEEUWEN n. 10938, October 1926; "flowers white").

Dr. R. MANSFELD at Berlin very kindly compared this plant with the allied species of SCHLECHTER and came to the conclusion, that it is intermediate between *Glossorhyncha dependens* SCHLTR. and *G. gracilis* Schltr., approaching somewhat more the first. The distinctions between the said species are, however, so small, that it will be hardly possible to keep them upright.

Agrostophyllum Bl.

Sect. Eu-agrostophyllum.

Agrostophyllum brachiatum J. J. S. in Bull. Dép. Agric. Ind. Néerl. XIX (1908), 1; in Nova Guinea VIII (1909), 38, t. XIII, 42; etc.

Dutch New-Guinea; Mamberamo, Albatros-bivouac, 50 m., epiphytical in swampy forest. (W. M. DOCTERS VAN LEEUWEN n. 9450, July 1926; "flowers white marked violet"). Van der Willigen-river, 65 m., epiphytical in swampy forest, near the ground. (W. M. DOCTERS VAN LEEUWEN n. 9699, July 1926; "flowers white"). Rouffaer-river, 125 m., hills, epiphytical in forest. (W. M. DOCTERS VAN LEEUWEN n. 9768, August 1926; "flowers white, lip stained violet").

Agrostophyllum ventricosum J. J. S. n. sp.

Tab. VI, 15.

Caules approximati, elongati, tenuiusculi, compressi, lineares, c. 28—35 cm. longi, sicco 0.4 cm. lati, vaginis pluribus sursum accrescentibus et in folia vergentibus conduplicatis imbricatis apicem versus angustatis fusco-membranaceo-marginatis in parte inferiore, radicibus crassiusculis villosis. Folia c. 6—8, erecto-patentia, superiora accrescentia, linearia, apice plus minusve inaequaliter alte bidentata, dentibus oblique triangulis ad subulato-triangulis falcatis cum dente brevissimo incurvo interposito, basi conduplicata, costa media dorso prominente, papyracea, ad c. 17—27 cm. longa, 0.625—0.8 cm. lata; vaginae elongatae, tubulosae, compressae, superne antice rumpentes et nigro-marginatae, apice obliquo repando basi laminae latiores, utrinque in dentem conspicuum oblique triangulum productae. Inflorescentia subcapituliformis, subnutans, secunda, dense multiflora, c. 1.75—2 cm. diam., foliis summis parvis suffulta, vaginulis inferioribus mox fatiscentibus, fibras relinquentibus. Inflorescentiae partiales brevissimae, 1-florae, pedunculo nonnullis vaginulis tubulosis superne ampliatis imbricatis obtusis ad acute apiculatis (bractea) donato. Sepalum dorsale late ovatum, obtusum, minutissime

apiculatum, concavum, 3-nervium, c. 0.46 cm. longum, 0.325 cm. latum. Sepala lateralibus basi breviter saccato-connata saccum labelli amplectentia, mentum satis conspicuum reversum ovario adpressum a dorso compressum a latere visum conicum rotundatum antice apertum c. 0.26 cm. longum formantia, oblique triangula, apice conduplicato-acuminata, acuta, 3-nervia, costa media dorso versus apicem prominente, concava, c. 0.5 cm., margine antico 0.77 cm. longa, basi 0.425 cm. metientia. Petala oblique oblonga, subfalcata, obtusa, concava, 3-nervia, c. 0.46 cm. longa, 0.18 cm. lata. Labellum gynostemio adpressum, medio rotundato-obtusangule incurvum, concavum, subtus ventricosum, basi saccatum, 3-lobum, sacco a dorso compresso rotundato, explanatum spatulatum, 0.8 cm. longum; lobi laterales erecti, breves, angulato-rotundati, intus lamella conspicua multo longiore horizontali porrecta gynostemio subtus adpressa oblongo-quadrangula apice sinu rotundato bidentata connexi; lobus intermedius multo major, gynostemium paulum superans, incurvus, apice leviter recurvulus, concavus, trilobulatus, ambitu breviter ovato-triangularis, irregulariter marginatus, c. 0.36 cm. longus, 0.45 cm. latus, lobulis lateralibus late oblique rotundatis, lobulo intermedio subsemiorbiculari, interdum retuso, c. 0.1 cm. longo, 0.2 cm. lato. Gynostemium breve, rectum, in utraque stigmatis parte lobulo patentissimo carnosum oblique triangulo obtuso instructum, basi antice valde rotundato-ventricosum incrassatum cum canalicula longitudinali in pedem decurrente, absque anthera 0.25 cm., cum pede reverso ovario adpresso quadrangulo c. 0.5 cm. longum, 0.25 cm. latum, clinandrium alte excavatum, subpyriformi, truncato. Rostellum breve, bidentatum. Stigma alte excavatum, quinqueangulare, margine inferiore in appendicem magnam carnosam porrectam transversam rotundatam subtus convexam infra stigma concavam productum. Ovarium teres, 3-sulcatum, apice valde obliquum, basi breviter attenuatum, 0.8 cm. longum. Capsula fusiformis, c. 1.2 cm. longa.

Dutch New-Guinea: Nassau-mountains, 2500 m., epiphytically in moss-grown forest. (W. M. DOCTERS VAN LEEUWEN n. 10883, October 1926; "flowers white").

In the shape of the flowers much resembling *A. lamellatum* J. J. S., *A. curvilabre* J. J. S. and *A. cyclopense* J. J. S., but with a capitate inflorescence. In the grasslike leaves it recalls *A. graminifolium* Schltr., but these are much shorter, the lip relatively much shorter with a much longer claw, and the midlobe smaller, upcurved and less distinctly 3-lobed.

Description from herbarium and flowers preserved in alcohol.

Ceratostylis Bl.

Sect. *Euceratostylis*.

Ceratostylis pugioniformis Bl. in Bull. Dép. Agric. Ind. Néerl. XIX (1908), 12; in Nova Guinea VIII (1909), 48, t. XVII, 55.

Dutch New-Guinea: Rouffaer-river, confluent C, 250 m., epiphytically in primeval forest. (W. M. DOCTERS VAN LEEUWEN n. 10316, September 1926; "flowers red").

Ceratostylis breviclavata J. J. S. n. sp.

Tab. VII, 16.

Rhizoma brevissimum, ramosum, vaginis tubulosis sensim acutatis saepe apiculatis prominenter nervosis parce laxe reticulato-venosis imbricatis superioribus accrescentibus ad basin caulium ad c. 2 cm. longis, radicibus tenuibus grosse pilosis. Caules approximati, teretes,

carnosi, c. 6.25—11.5 cm. longi, 0.16 cm. diam., 1-folii. Folium erectum, teres, sicco apice obtusiusculum vel acutiuscule conicum, supra subapplanatum, supra leviter sulcatum cum lateribus leviter convexis, c. 3.5—4.5 cm. longum; vagina brevis, leviter constricta, basi tubulosa, c. 0.2 cm. longa. Inflorescentiae fasciculatae, nonnullis vaginulis acuminatis acutatisve prominenter nervosis cinctae, pedunculis c. 0.2 cm. longis, 1-floris, nonnullis vaginulis tubulosis donatis. Flores c. 0.26 cm. lati, fere 0.4 cm. longi, sepalis dorso praesertim ad basin mentoque parce pilosis. Sepalum dorsale ovarium continuum, apice recurvum, oblongum, obtusum, leviter concavum, 3-nervium, c. 0.23 cm. longum, bene 0.1 cm. latum. Sepala lateralia lacinia conspicua oblique obovata inflato-concava ad pedem gynostemii decurrentia, marginibus anticis inferne connatis deinde contiguis mentum reversum cum ovario angulum acutum faciens e basi breviter contracta valde clavato-inflatum pedem gynostemii bene superans c. 0.17 cm. longum 0.15 cm. latum formantia, parte antica divergentia, recurva, oblique ovata, apice angustata, obtusa vel anguste obtusa, 3-nervia, usque ad apicem ovarii fere 0.2 cm., tota fere 0.3 cm. longa, parte antica bene 0.1 cm. lata. Petala porrecta, gynostemio adpressa, superne recurva, oblique elliptico-lanceolata, acuta, 1-nervia, fere 0.2 cm. longa, 0.06 cm. lata. Labellum spathulatum, infra medium arcuato-recurvum, concavum, marginibus incurvis subundulatis tenuibus $\frac{2}{3}$ partibus inferioribus ciliolatis, c. $\frac{1}{3}$ parte superiore carnoso-incrassata subtus convexa supra apice tantum convexa, 3-nervium, costis 2 longitudinalibus tenuibus ciliolatis ad basin partis incrassatae terminantibus, costula tertia subobsoleta longiore interposita, explanatum totum bene 0.3 cm. longum, ungue oblongo c. 0.12 cm. longo, lamina ambitu subovali vix 3-lobulata, c. 0.2 cm. longa, 0.13 cm. lata, parte incrassata bene 0.1 cm. longa. Gynostemium rectum, a dorso compressum, supra visum ambitu oblongo-quadrangulum, alte bipartitum, brachiis porrectis, parallelis, rectis, oblongis, apicem versus paululum dilatatis, rotundatis, inferne verticalibus superne subtortis contiguisque, basi fenestram facientibus, intus concavis, extus convexis. Anthera brachiis multo brevior, cucullata, transverse subelliptica, connectico convexo incrassato subquadrangulo apice producto rotundato-truncato, bene 0.05 cm. lata. Pollinia 8, plus minusve oblique obovoidea, basi acuta. Pes gynostemii cum ovario angulum acutum faciens, rectus, apice breviter angulato-incurvus et a sepalis lateralibus liber, anguste linearis, canaliculatus, bene 0.1 cm. longus. Ovarium pedicellatum 6-sulcatum, sparse puberulum, c. 0.26 cm. longum.

Dutch New-Guinea: Rouffaer-river, confluent C, 250 m., epiphytical, thinstemmed forest. (W. M. DOCTERS VAN LEEUWEN n. 10266, September 1926; "flowers white, lip yellow").

Amongst the Papuan species with white flowers characterized by the shortly clavate, strongly inflated mentum.

Description from herbarium and flowers preserved in alcohol.

Ceratostylis macra J. J. S. n. sp.

Tab. VII, 17.

Rhizoma abbreviatum, valde ramosum, caespitificum, radicibus tenuibus longius pilosis. Caules approximati, elongati, tenues, teretes, c. 12—26 cm. longi, c. 0.1 ad bene 0.1 cm. diam. (in spiritu vini), 1-folii, vaginis adpressis superne accrescentibus membranaceis prominenter nervosis ad c. 4.5—6 cm. longis ad basin. Folium teres, filiforme, supra obtusangule canaliculatum, c. 5.5—7.25 cm. longum, 0.1 cm. ad bene 0.1 cm. diam.; vagina canaliculata, basi

tubulosa, c. 0.25—0.35 cm. longa. Inflorescentia fascicularis, pedunculis tenuibus, c. 0.32 cm. longis, 1-floris, nonnullis vaginulis membranaceis bracteis similibus donatis. Bractea ovarium aequans, basi breviter tubulosa ovarium includens, ceterum subinflato-concava, acuta, membranacea, c. 0.3 cm. longa. Flores pauci simul florentes, c. 0.4 cm. lati, 0.48 cm. longi, sepalis petalisque e basi erecta recurvis, sepalis basi tantum praesertim in mento parce puberulis. Sepalum dorsale oblongum, apice breviter acutatum, obtusum, 3-nervium, c. 0.36 cm. longum, 0.14 cm. latum. Sepala lateralialia lacinia oblique obovato-oblonga valde concava ad pedem gynostemii decurrentia, marginibus anticis inferne connatis, mentum reversum cum ovario angulum acutum faciens vix incurvulum a dorso compressum a latere visum oblongum antice visum breviter clavatum apice transverse inflatum retusum dorso c. 0.15 cm. longum latumque formantia, parte libera divergentia, oblique subovato-oblonga, obtusa, breviter obtuse apiculata, c. 0.27 cm., tota 0.45 cm. longa, basi 0.26 cm. metientia, parte antica 0.15 cm. lata. Petala convexa, oblique lanceolato-elliptica, longius acuminata, acuta, basin versus subcontracto-angustata, 1-nervia, c. 0.32 cm. longa, bene 0.1 cm. lata. Labellum concavum, supra basin recurvulum, deinde leviter incurvulum, a latere visum leviter sigmoideum, subtus convexum. magnam partem tenue, circiter $\frac{1}{3}$ superiore incrassatum, basi apiceque exceptis ciliolatum, 3-nervium, costis 2 parallelis tenuibus ciliolatis intus in parte inferiore in $\frac{3}{5}$ partibus supra basin terminantibus, costa tertia a basi usque ad apicem, explanatum e basi breviter unguiculata subellipticum, apice triangulo-angustatum incrassatumque, acutiusculum, totum fere 0.4 cm. longum, basi 0.075 cm. latum, lamina c. 0.3 cm. longa, 0.17 cm. lata. Gynostemium ambitu oblongo-quadrangulum, apicem versus paulum dilatatum, usque ad $\frac{1}{3}$ supra basin bipartitum, basi leviter angustatum, subtus longitudinaliter canaliculatum, c. 0.16 cm. longum, brachiis porrectis, remotis, oblongis, rotundatis, intus concavis, extus convexis. Anthera brachiis bene brevior, cucullata, suborbicularis, convexa, inferne utrinque in lobulum oblique rotundatum dilatata, c. 0.07 cm. lata. Pes gynostemii cum ovario angulum acutum faciens, rectus, linearis, c. 0.1 cm. longus, apice obtusangule incurvo, a sepalis lateralibus libero, c. 0.05 cm. longo. Ovarium pubescens, apice valde obliquum, c. 0.3 cm. longum.

Dutch New-Guinea: Nassau-mountains west, 2500 m., epiphytical in moss-grown forest. (W. M. DOCTERS VAN LEEUWEN n. 10894, October 1926; "flowers violet").

In the shape of the lip resembling *C. ciliolata* J. J. S. but for the rest very distinct. Description from herbarium and flowers preserved in alcohol.

Ceratostylis ovatilabris J. J. S. in Nova Guinea XIV (1929), 386, t. LV, 42.

Dutch New-Guinea: Nassau-mountains west, 1500 m., epiphytical in primeval forest. (W. M. DOCTERS VAN LEEUWEN no. 10936, October 1926; "flowers white").

Mediocalcar J. J. S.

Sect. Eumediocalcar.

Mediocalcar Doctersii J. J. S. n. sp.

Tab. VII, 18.

Rhizoma elongatum, dependens, ramosum, c. 63 cm. longum, vaginis tubulosis, radicibus tenuibus puberulis. Pseudobulbi basi c. 2—4 cm. distantes, fere omnino rhizomati adnati, apice

tantum liberi, sicco teretes, rhizomati aequicrassi, c. 1—2.3 cm. longi, apice libero c. 0.1—0.4 cm. longo, folium 1 normale vel folium 1 normale 1 rudimentarium vel folium rudimentarium tantum gerentes. Folium lineari-lanceolatum, obtusum vel minute inaequaliter bilobulum cum apiculo brevi crasso interposito, basi angustatum conduplicatumque, costa media dorso obtuse prominente, sicco rigide coriaceum, c. 7—9.5 cm. longum, 0.625—1.1 cm. latum. Inflorescentia singula, pedunculo c. 1.1 cm. longo. Bractea adpressa, parva, triangula, acuminata, acuta, concava, 0.16 cm. longa. Flos totus fere 1.1 cm. longus, inferne 0.64 cm., apice 0.67 cm., fauce 0.35 cm. latus, supra basin 0.725 cm. altus, sepalis in formam urceoli valde obliqui antice valde ventricosoinflati circiter ad medium trifidi basi non impressi angulati explanati bene 1.2 cm. longi 1.5 cm. lati connatis. Sepalum dorsale apice recurvum, totum oblongum, 3-nervium, c. 0.875 cm. longum, parte libera ovata, rotundata, c. 0.45 cm. longa, 0.275 cm. lata. Sepala lateralalia 3-nervia, tota c. 1.275 cm. longa, parte libera recurvula, marginibus superne incurvula, oblique triangula, obtusiuscula, bene 0.4 cm. longa, 0.35 cm. lata. Petala oblique linearia, obtusiuscula, falcutula, leviter concava, marginibus ad apicem incurvulis, 1-nervia, c. 0.85 cm. longa, bene 0.1 cm. lata. Labellum inclusum, gynostemio parallelum et bene longius, supra visum ambitu subelliptico-oblongum, apicem versus angustatum, 3-nervium, unguiculatum, in c. $\frac{1}{3}$ supra basin calcaratum, c. 0.9 cm. longum, 0.3 cm. latum; unguis oblongo-quadrangulus, subplanus, auriculis 2 conspicuis deflexis latis oblique rotundatis ad basin, c. 0.24 cm. longus; calcar reversum, cum ungue angulum acutum faciens, rectum, conicum, obtusum, unguem subaequans, laminae multo brevius, dorso 0.27 cm. longum; lamina valde concava, vix 3-lobulata, ab apice unguis 0.675 cm. longa, lobulis lateralibus ad faucem calcaris erectis, abbreviatis, basi latis, leviter rotundatis, lobulo intermedio porrecto, triangulo, apicem versus angustato, anguste obtuse apiculato. Gynostemium satis longum, vix curvulum, semiteres, dorso convexum, in utraque stigmatis parte rotundato-dilatatum, c. 0.44 cm. longum, clinandrio contracto, concavo, suborbiculari, auriculis productis latis, margine postico subcrenulatis, pede brevi, reverso, cum ovario angulum acutum faciente, quadrangulo, c. 0.14 cm. longo. Anthera cucullata, ambitu quadrata, basi rotundato-bilobula, lobulis fenestram orbicularem semipellucidam ornatis, apice incurva, subtruncata, utrinque macula orbiculari semipellucida donata, c. 0.125 cm. lata. Pollinia 8, lateraliter compressa, rotundato-triangula ad obovata. Stigma obverse rotundato-triangulum. Ovarium pedicellatum 6-sulcatum, c. 1.6 cm. longum.

Dutch New-Guinea: Nassau-mountains, Exploration-bivouac, 700 m., epiphytcal in primeval forest. (W. M. DOCTERS VAN LEEUWEN n. 10616, October 1926; "flowers orange").

Well characterized among the species with a conspicuous spur by the small flowers, the strongly inflated calyx tube, the narrow petals and the large deflexed auricles of the claw of the lip.

Description from herbarium and flowers preserved in alcohol.

Podochilus Bl.

Sect. *Apista*.

Podochilus scalpelliformis Bl. Rumphia IV (1848), 45, t. 194, fig. 4; t. 200 C; etc.

Dutch New-Guinea: Mamberamo, Albatros-bivouac, epiphytcal in primeval forest. (W. M. DOCTERS VAN LEEUWEN, 50 m., nrs. 9397, June 1926 and 9432, July 1926; 75 m., nrs. 9507, July 1926 and 11185, October 1926). Kouffaer-river, 175 m., hills, bank, epiphytcal in primeval forest. (W. M. DOCTERS VAN LEEUWEN n. 10021, August 1926).

Podochilus imitans Schltr. in Schum. et Laut. Nachtr. Fl. D. Schutzgeb. Südsee (1905), 118; etc.

Dutch New-Guinea: Mamberamo, opposite Albatros-bivouac, 75 m., thin forest on hill ridge, epiphytical. (W. M. DOCTERS VAN LEEUWEN n. 9516, July 1926; "flowers white, -top of petals violet"). Rouffaer-river, 175 m., hills, epiphytical in primeval forest. (W. M. DOCTERS VAN LEEUWEN n. 10113, August 1926; "flowers white with violet dots"). Same locality, confluent C, 250 m. (W. M. DOCTERS VAN LEEUWEN n. 10267a, September 1926).

Sect. *Diadena*.

Podochilus muscosus Schltr. Orch. D. N. Guinea (1912), 331; Fig. Atl. t. CXIX, Nr. 448. — *P. mamberamensis* J. J. S. in Nova Guinea XIV (1929), 362, t. XLIX, 26.

Dutch New-Guinea: Mamberamo, Albatros-bivouac, 50 m., epiphytical in primeval forest. (W. M. DOCTERS VAN LEEUWEN n. 9396, June 1926; "flowers white").

I am much indebted to Dr. R. MANSFELD for comparing this plant with *P. muscosus* Schltr. and for sending a flower enabling me to ascertain that his identification was correct. Moreover he kindly informed me that in his opinion *P. muscosus* Schltr. and *P. polytrichoides* Schltr. are identical, the figures of both not being quite correct. If so, the latter name would have the priority. The only flower on the type material is the one dissected by SCHLECHTER and the lip is somewhat disturbed.

Appendicula Bl.

Sect. *Eu-appendicula*.

Appendicula reflexa Bl. Bijdr. (1825), 301; etc.

var. **neopommeranica** Schltr. Orch. D. N. Guinea (1912), 338; Fig. Atl. t. CXXI, Nr. 456; etc.

Dutch New-Guinea: Meervlakte, Rouffaer-river, Motor-bivouac, 100 m., epiphytical in bank-forest. (W. M. DOCTERS VAN LEEUWEN, n. 11116, November 1926; "flowers white").

Appendicula grandifolia Schltr. Orch. D. N. Guinea (1912), 339; Fig. Atl. t. CXXII, Nr. 457.

Dutch New-Guinea: Mamberamo, Albatros-bivouac, 50—60 m., epiphytical in primeval forest. (W. M. DOCTERS VAN LEEUWEN n. 9458, July 1926; n. 11211, November 1926; "flowers white").

Appendicula lamprophylla Schltr. Orch. D. N. Guinea (1922), 340; Fig. Atl. t. CXXII, Nr. 458.

Dutch New-Guinea: Rouffaer-river, confluent C, 250 m., epiphytical in primeval forest. (W. M. DOCTERS VAN LEEUWEN n. 10328, September 1926; "flowers white"). Rouffaer-river, 175 m., hills, epiphytical in primeval forest. (W. M. DOCTERS VAN LEEUWEN n. 9976, August 1926; "flowers white").

Appendicula Gjellerupii J. J. S. in Nova Guinea XIV (1929), 369. — *A. carinifera* J. J. S. (non Schltr.) in Fedde Rep. XII (1913), 406; in Nova Guinea XII (1916), 449, t. CLXXIV, 325.

Dutch New-Guinea: Mamberamo, Albatros-bivouac, 100 m., thin forest on hill ridge, terrestrial, common on humus. (W. M. DOCTERS VAN LEEUWEN n. 9012, 7 May 1926; "flowers white").

Sect. *Chaunodesme*.

Appendicula palustris J. J. S. in Bull. Dép. Agric. Ind. Néerl. XIX (1908), 4; in Nova Guinea VIII (1909), 116, t. XXXIX, 130.

NOVA GUINEA XVIII. BOTANIQUE.

Dutch New-Guinea: Rouffaer-river, 175 m., hills, epiphytical in primeval forest. (W. M. DOCTERS VAN LEEUWEN n. 9939, August 1926; "flowers greenish yellow, lip with a dark violet stain"). Nassau-mountains, Exploration-bivouac, 900 m., terrestrial in primeval forest. (W. M. DOCTERS VAN LEEUWEN n. 10726, October 1926; "flowers light green, lip with 2 violet blotches").

Sect. *Chilopogon*.

Appendicula oxysepala J. J. S. in N. Guinea VIII (1909), 114, t. XXXVIII, 128; etc.

Dutch New-Guinea: Mamberamo, opposite Albatros-bivouac, 50 m., primeval forest, epiphytical near the ground. (W. M. DOCTERS VAN LEEUWEN n. 9560, July 1926).

Sect. *Cyphochilus*.

Appendicula biloba J. J. S. in Bull. Dép. Agric. Ind. Néerl. XXII (1909), 42; in Nova Guinea VIII (1909), 141, t. XLVI, 156. — *Cyphochilus bilobus* Schltr. Orch. D. N. Guinea (1912), 358.

var. ***angustifolia*** J. J. S. n. var.

Rhizoma breve, ramosum, radicibus tenuibus pilosis. Caules approximati, erecti, ramosi, c. 65 cm. longi, internodiis ad c. 1.1—2.2 cm. longis, superioribus decrescentibus. Folia articulata, patentia, lineari-lanceolata, paululum inaequaliter triangulo-bidentata cum mucrone longiore interposito, basi semitorta, nervis 3 majoribus 4 minoribus sicco subtus prominentibus, firmiter papyracea, ad c. 6.5 cm. longa, 0.73 cm. lata; vaginae tubulosae, internodia superantes, apice altius excisae, sicco dense prominenter nervosae. Inflorescentiae e nodis caulium, patentes ad erecto-patentes, ramosae, vaginulis tectae, rachide diu flores gignente, disticha, pluriflora, 1.8 cm. superante, internodiis c. 0.1—0.2 cm. longis. Bractee imbricatae, erecto-patentes, ovatae, brevissime apiculato-acuminatae, concavae, 5-nerviae, nervis 2 interpositis, dorso sparse punctulatae, c. 0.725 cm. longae, 0.45 cm. latae. Flores c. 1 cm. lati, sepalis patentibus, recurvis, convexis cum sulco longitudinali, dorso parce furfuraceo-puncticulatis. Sepalum dorsale basi longitudine c. 0.08 cm. gynostemio adnatum, apice recurvum, ovatum, obtusum, apiculatum, 3-nervium, nervis praesertim costa media dorso prominentibus, bene 0.6 cm. longum, 0.325 cm. latum. Sepala lateralibus ad pedem gynostemii decurrentia, mentum breve crassum cum ovario angulum acutum faciens subrectum dorso planum cum costa longitudinali obtusum c. 0.2 cm. longum formantia, margine antico libera, basi concava basin labelli amplectentia, oblique ovato-triangularia, acuta, lateraliter compresso-apiculata, 4-nervia, costa media dorso prominente, bene 0.6 cm., margine antico bene 0.7 cm. longa, basi fere 0.4 cm. lata. Petala oblique anguste subspathulato-oblonga, obtusa, 2—1-nervia, c. 0.47 cm. longa, 0.15 cm. lata. Labellum basi cum apice pedis gynostemii breviter saccatum, basi erectum, supra basin obtusangule recurvum, unguiculatum, basi valde concavum dorso valde convexum, marginibus erectis, deinde acutangule recurvis, parte antica valde dilatata supra convexa subtus concava, 5-nervium, supra basin callo carnosio reverso postice libero obtuso antice in costas 2 longitudinales basi humiles patenterque puberulas deinde elavatas incrassatas papillosas canalicula angulata separatas bene supra basin laminae altissimas obtusissimas abrupte terminantes exeunte donatum, dente alto conico obtuso in sinu ante costas, explanatum ex ungue subcuneato-oblongo 0.3 cm. longo apice fere 0.3 cm. lato in laminam obreniformem 0.4 cm. longam 0.66 cm. latam abrupte dilatatum, lobis rotundatis margine exteriori subcrenatis, disco triangulo sulcis a lobis lateralibus

separato. Gynostemium breve, latum, a dorso compressum, apice utrinque rotundato-dilatatum, dorso convexum, cum anthera 0.25 cm. longum, 0.225 cm. latum, clinandrio excavato, auriculis latis, rotundatis, compressis. Anthera inclinata, cucullata, cordato-ovata, obtusa, utrinque infra apicem denticulo patente triangulo donata, lobulis basilaribus triangulis, c. 0.1 cm. lata. Pollinia 6, anguste oblique oblonga ad subclavata, stipitibus 2, curvatis, e basi tenui valde curvata cuneata-triangulis. Rostellum brevissimum, latissime excisum, brevissime remote bidentatum. Stigma conspicuum, obverse triangulum, angulis rotundatum. Pes gynostemii cum ovario angulum acutum faciens, quadrangulum, marginibus elevatis, parte mediana convexa sulcis 2 inconspicuis leviter tricolostulata, papillosus, c. 0.2 cm. longus. Ovarium 6-sulcatum, c. 0.45 cm. longum.

Dutch New-Guinea: Rouffaer-river, confluent C, 250 m., primeval forest, on stones in a cascade. (W. M. DOCTERS VAN LEEUWEN n. 10362, September 1926; "flowers light yellow and violet").

Provisionally I have described this as a variety of *A. biloba* J. J. S. but it is possible that it will prove necessary to raise it to specific rank when more material of both varieties is available. It differs from the type in the more branched stems, much smaller leaves, somewhat larger flowers, narrower petals.

Description from herbarium and a flower preserved in alcohol.

Poaephyllum Ridl.

Poaephyllum trilobum J. J. S. n. sp.

Tab. VII, 19.

Rhizoma abbreviatum, radicibus tenuibus puberulis. Caules approximati, elongati, simplices, compressi, ad c. 58 cm. longi, internodiis c. 0.55—0.6 cm. longis, ultimis ad 0.4 cm. reductis. Folia patentia ad subpatentissima, linearia, apice plus minusve inaequaliter obtuse triangulo-bidentata cum mucrone longiore interposito, basi conduplicato-canaliculata, dense nervosa, ad c. 3.4—4.5—5 cm. longa, 0.35—0.6—0.4 cm. lata, superiora et inferiora decrescentia; vaginae tubulosae, compressae, apice antice alte excisae, adpressae, c. 0.3—0.4 cm. latae. Inflorescentiae axillares, 2 vaginas perforantes, laxae multiflorae, pedunculo cauli adpresso, partim vagina tertia oblecto, ramoso, tenui, vaginulato, ramulis erectis tenuibus c. 1.6—2.3 cm. longis, rachide elongata, quaquaverse flexuosa, filiformi, c. 3.1—6 cm. longa, 10—18-flora. Braectae parvae, persistentes, patentes, rachidem amplexantes, oblique cupuliformes, late triangulae, apiculatae, concavae, c. 0.125 cm. longae. Flores succedanei, c. 0.85 cm. lati, bene 0.7 cm. longi. Sepalum dorsale erectum, cum ovario angulum obtusum faciens, oblongum, obtusum, minute apiculatum, leviter concavum, 3-nervium, c. 0.475 cm. longum, 0.225 cm. latum. Sepala lateralia ad pedem columnae decurrentia, mentum deorsum spectans cum ovario angulum acutum faciens rectum latum subtruncatum c. 0.27 cm. longum formantia, patentia, marginibus anticis a basi divergentia, angulum acutum facientia, margine antico inferne leviter rotundato-dilatata, ambitu oblique triangula, obtusa, minute apiculata, concava, 3-nervia, costa media dorso prominula, c. 0.5 cm., margine antico fere 0.7 cm. longa, basi 0.35 cm. lata. Petala erecto-patentia, oblique oblonga, obtusa, $\frac{3}{5}$ partibus superioribus erosa, leviter concava, 1-nervia, utrinque nervo 1 basin non attingente addito, subundulata, c. 0.46 cm. longa, fere 0.2 cm. lata. Labellum apici pedis gynostemii insertum, erectum, concavum, c. $\frac{1}{3}$ superiore

abrupte recurvum, 3-lobum, 3-nervium, intus in $\frac{2}{5}$ partibus inferioribus marginibus basique exceptis papillosum, callo reverso triangulo convexo basin attingente basi puberulo ad basin, c. 0.43 cm. longum, 0.25 cm. latum, expansum ambitu quinquangulare, 0.6 cm., usque ad apicem lorum lateralium 0.425 cm. longum, basi 0.22 cm., superne 0.4 cm. latum; lobi laterales erecti, rotundato-rectanguli; lobus intermedius abrupte recurvus, explanatus utrinque plica introrso a lobis lateralibus separatus, ovatus, obtusus, callo conspicuo late ovato convexo basi in costulam producta in flexu terminante ad apicem, c. 0.16 cm. longus, 0.175 cm. latus. Gynostemium erectum, cum ovario angulum obtusum faciens, subgracile, vix curvulum, a dorso compressum, oblongum, dorso convexum, subtus concavum papillosumque, absque anthera c. 0.28 cm. longum, clinandrio excavato, transverso, irregulariter marginato, pariete postico brevissimo retuso cum gibbo minimo interposito, auriculis porrectis apicem superantibus triangularis. Anthera cucullata, quadrangula, apice breviter subtruncato-bilobula cum denticulo minimo in sinu lato, dorso truncata, c. 0.12 cm. lata. Pollinia 8, inaequalia, in corpuscula 2 oblique subclavata superne conglutinata basi divergentia fere 0.1 cm. longa unita, glandula.... Stigma transverse ovale. Pes gynostemii cum ovario angulum acutum faciens, rectus, lineari-oblongus, truncatus, concavus, dense puberulus, c. 0.275 cm. longus. Ovarium 6-sulcatum, c. 0.4 cm. longum.

Dutch New-Guinea: Rouffaer-river, confluent C, 250—300 m., riverbank, epiphytical in primeval forest. (W. M. DOCTERS VAN LEEUWEN n. 10230, September 1926, "flowers white, sometimes more or less red, column underside violet"; n. 10337, September 1926, "flowers white, column red").

Distinguished from all species hitherto described in the colour of the flowers, the broad petals and the broad three-lobed lip.

Description from herbarium and flowers preserved in alcohol.

Eria Lndl.

Sect. Goniorhabdos.

Eria javanica Bl. Rumphia II (1836), 23; etc.

Dutch New-Guinea: Mamberamo, Albatros-bivouac, 60 m., epiphytical in primeval forest. (W. M. DOCTERS VAN LEEUWEN n. 11313, November 1926; "flowers white, sepals with a little red outside").

Eria peraffinis J. J. S. in Fedde Rep. XI (1912), 137; in Nova Guinea XII (1916), 353, t. CXXVIII, 235.

Dutch New-Guinea: Mamberamo, Albatros-bivouac, 60 m., epiphytical in primeval forest. (W. M. DOCTERS VAN LEEUWEN n. 11218, November 1926; "flowers white, lip light yellow").

Sect. Hymeneria.

Eria Lorentziana J. J. S. et Krzl. in Pflanzenr. IV. 50. II B. 21 (1911), 132; J. J. S. in Nova Guinea VIII (1911), 580, t. XCIX A. — *E. clausa* J. J. S. (non King et Pantl.) in Bull. Dép. Agric. Ind. Néerl. XXXIX (1910), 13. — *E. diphylla* Schltr. Orch. D. N. Guinea (1912), 663.

Dutch New-Guinea: Nassau-mountains, Exploration-bivouac, 700 m., epiphytical in primeval forest. (W. M. DOCTERS VAN LEEUWEN n. 10477, September 1926; "flowers white, lip with violet"). Rouffaer-river, 400 m., epiphytical in primeval forest. (W. M. DOCTERS VAN LEEUWEN n. 10760, October 1926; "flowers white, base of lip red").

Dendrobium Sw.Sect. *Cadetia*.

Dendrobium ordinatum J. J. S. in Fedde Rep. XII (1913), 27; in Nova Guinea XII (1915—'16), 272, t. XCVIII, 170.

Dutch New-Guinea: Rouffaer-river, confluent C, 250 m., epiphytical, riverbank. (W. M. DOCTERS VAN LEEUWEN n. 10218, September 1926; "flowers white, lip yolk-yellow").

Dendrobium ledifolium J. J. S. n. sp.

Tab. VIII, 20.

Pusillum. Pseudobulbi approximati, conici, carnosi, antice conspicue canaliculati, c. 0.75 cm. longi, 0.26 cm. diam. Folium recurvulum, lanceolatum, obtusum, brevissime bidentatum, apiculatum, supra in utraque parte canaliculae longitudinalis convexum, subtus concavum carinatumque, acute marginatum, carnosum, basi brevissime contractum conduplicatumque, c. 1.85—3.5 cm. longum, 0.5 cm. latum. Inflorescētia ante et pone folium singulae, 1-florae, pedunculo c. 0.46 cm. longo, nonnullis vaginulis tubulosis membranaceis donato. Bractea minima, adpressa, triangula. Flos in sectione mediocris, sepalis dorso sparse minute atrofusce punctatis. Sepalum dorsale incurvulum, inferne convexum, apice concavum, ovatum, apicem versus angustatum, acutum, dorso ad apicem paululum incrassatum, basi utrinque in lobulum minimum reversum rotundatum productum, 3-nervium, totum 0.43 cm. longum, 0.24 cm. latum. Sepala lateralia lacinia angusta oblique oblonga ad pedem gynostemii decurrentia, mentum reversum cum ovario angulum acutum faciens basi subrecurvulum ceterum subrectum vix a dorso compressum obtusum retusum c. 0.375 cm. longum 0.175 cm. latum formantia, recurva, late oblique ovato-triangula, margine postico valde rotundata, obtusa, obtuse apiculata, 4-nervia, c. 0.425 cm., margine antico 0.65 cm. longa, parte antica 0.36 cm. lata. Petala oblique linearia, falcata, apicem versus angustata, acuta, basi margine brevissime dilatata decurrentiaque, convexa, 1-nervia, fere 0.5 cm. longa, basi 0.12 cm., medio 0.05 cm. lata. Labellum unguiculatum, 3-lobum, 3-nervium, spathulatum, explanatum totum c. 0.77 cm. longum, ad lobos laterales 0.43 cm. latum; unguis basi longitudine 0.1 cm. pedi gynostemii adnatus, lineari-oblongus, canaliculatus, medio papillosus, carnosus, c. 0.4 cm. longus, basi 0.16 cm., medio 0.125 cm. latus, abrupte in laminam ambitu obverse aequilateraliter trapeziformem 0.375 cm. longum dilatatus; lobi laterales patentes, oblique cuneato-trapezoidei, marginibus leviter rotundati, tenues, margine antico c. 0.14 cm. longi, apice 0.18 cm. lati; lobus intermedius magnus, transversus, late obreniformis, lobulis patentissimis late oblique ovato-orbicularibus convexis margine apicali minute ciliolatis sinu lato separatis cum lobulo brevissimo obtuso in sinu, crasse carnosus, c. 0.27 cm. longus, 0.55 cm. latus. Gynostemium cum ovario angulum obtusum faciens, rectum, a dorso compressum, oblongo-quadrangulum, marginibus minute papillosum, c. 0.175 cm. longum, clinandrio concavo, transverso, pariete postico dente triangulo incurvo margine utrinque dente lateraliter compresso incurvo papilloso instructo. Anthera cucullata, ambitu sexangularis, e basi transverse quadrangula in appendicem apicem versus angustatam aequilateraliter trapeziformem apice truncatam ciliolatamque producta, c. 0.08 cm. lata. Pollinia 4, sublinearia, in corpuscula 2 oblique oblonga supra convexa subtus vix concava conglutinata, 0.07 cm. longa. Stigma leviter concavum, subsexangulare. Pes gynostemii cum ovario

angulum acutum faciens, leviter sigmoideus, lineari-oblongus, subtus apice excepto puberulus, dorso 3-costatus, c. 0.375 cm. longus. Ovarium 6-costatum, sparse atrofusce punctatum, c. 0.2 cm. longum; pedicellus 6-costatus, parcissime punctatus, c. 0.8 cm. longus.

Dutch New-Guinea: Rouffaer-river, 200 m., hills, epiphytial in primeval forest. (W. M. DOCTERS VAN LEEUWEN n. 10197, September 1926; "flowers white"). As above, confluent B, 250 m., epiphytial in primeval forest. (W. M. DOCTERS VAN LEEUWEN n. 10363, September 1926; "flowers white").

Among the allied species, which have been ascribed by SCHLECHTER to his section *Sarcocadetia* and partly to *Pterocadetia* of the genus *Cadetia*, this shows the broad lateral lobes of *D. goliathense* J. J. S. but is for the rest very different. Much closer is the affinity with *D. Finisterrae* J. J. S. (*Cadetia Finisterrae* Schltr.) from which it may be distinguished by the shorter pseudobulbs, ovate sepals, the much longer and retuse mentum, the much longer clawed lip.

Description from herbarium and material preserved in alcohol. The 3 flowers at hand were all much injured.

Dendrobium legareiense J. J. S. in Fedde Rep. XII (1913), 28; in Nova Guinea XII (1916), 274, t. C, 172.

var. **rouffaerense** J. J. S. n. var.

Differt a forma typica mento ungueque labelli longioribus, 0.57 cm. et 0.56 cm. longis, lobis lateralibus longioribus, margine antico 0.14 cm. longis.

Dutch New-Guinea: Rouffaer-river, confluent C, 300 m., epiphytial in primeval forest. (W. M. DOCTERS VAN LEEUWEN n. 10333, September 1926; "flowers white").

The differences with *D. legareiense* J. J. S. are in my opinion too small to consider it as specifically distinct.

Dendrobium Versteegii J. J. S. in Bull. Jard. Bot. Buit. 2e sér. VIII (1912), 17; etc.

Dutch New-Guinea: Rouffaer-river, 175 m., hills, epiphytial in primeval forest on river bank. (W. M. DOCTERS VAN LEEUWEN n. 10020, August 1926; "flowers white, lip with red streaks and dots").

Dendrobium toadjanum J. J. S. in Fedde Rep. XII (1913), 30; in Nova Guinea XII (1916), 282, t. CIII, 179.

Dutch New-Guinea: Rouffaer-river, 65 m., epiphytial in swampy forest. (W. M. DOCTERS VAN LEEUWEN n. 9716, August 1926; "flowers white, lip with violet").

Dendrobium Doormanii J. J. S. in Nova Guinea XIV (1929), 397, t. LIV, 52.

Dutch New-Guinea: Rouffaer-river, confluent C, 250 m., epiphytial. (W. M. DOCTERS VAN LEEUWEN n. 10220, September 1926; "flowers light yellow, lip with two violet dots").

Dendrobium transversilobum J. J. S. in Bull. Dép. Agric. Ind. Néerl. XXXIX (1910), 11; etc.

Dutch New-Guinea: Mamberamo, Albatros-bivouac, epiphytial in forest. (W. M. DOCTERS VAN LEEUWEN n. 9052, May 1926; n. 11328, November 1926).

Dendrobium opacifolium J. J. S. in Nova Guinea XII (1916), 279, t. CII, 176.

Dutch New-Guinea: Mamberamo, Albatros-bivouac, epiphytocal in primeval forest. (W. M. DOCTERS VAN LEEUWEN n. 9398, June 1926; n. 9435, July 1926).

Sect. *Diplocaulobium*.

Dendrobium cyclobulbon Schltr. Orch. D. N. Guinea (1912), 461; etc.

Dutch New-Guinea: Mamberamo, Albatros-bivouac, epiphytocal in primeval forest. (W. M. DOCTERS VAN LEEUWEN n. 9393, June 1926). Same locality, opposite Albatros-bivouac, epiphytocal in thin forest on hill-ridge. (W. M. DOCTERS VAN LEEUWEN n. 9553, July 1926).

Dendrobium stelliferum J. J. S. in Nova Guinea XIV (1929), 399, t. LIX, 53.

Dutch New-Guinea: Mamberamo, Albatros-bivouac, 50 m., epiphytocal in primeval forest. (W. M. DOCTERS VAN LEEUWEN, n. 9551, July 1926).

Dendrobium connexicostatum J. J. S. n. sp.

Tab. VIII, 21.

Rhizoma breve, valde ramosum, subfruticiforme, caespitosum, initio vaginis tubulosis se amplectentibus superioribus accrescentibus ad c. 2.5 cm. longis basin caulium includentibus tectum, radicibus numerosis tenuibus tortilibus. Caules approximati, fasciculati, tenues, sicco angulati, basi haud vel vix incrassati, c. 5—12 cm. longi. Folium breve, lineare, aequaliter vel paulo inaequaliter obtuse bilobula, basi leviter angustata, costa media supra leviter sulcata subtus prominula, coriaceum, c. 2.2—4.5 cm. longum, 0.275—0.4 cm. latum. Inflorescentia singula?, pedunculo filiformi, c. 0.9 cm. longo, vaginula tubulosa membranacea c. 0.4 cm. longa ad basin, spatha compressa, acuta, nitidula, straminea, c. 0.7—1 cm. longa, 0.12—0.16 cm. lata. Bractea minima, adpressa. Flos parvus. Sepalum dorsale lineare, apice leviter incrassatum, obtusum, basi vix dilatatum, concavum, 3-nerviū, c. 0.775 cm. longum, medio bene 0.1 cm., basi 0.15 cm. latum. Sepala lateralia basi oblique dilatata ad pedem gynostemii decurrentia, oblique linearia, superne oblique recurvula, apice leviter incrassata, obtusa, canaliculata, 3-nervia, c. 0.8 cm. longa, basi 0.24 cm., medio bene 0.1 cm. lata. Petala oblique linearia, superne paululum dilatata, subspathulata, anguste obtusa, apicem versus incrassata dorso convexa intus vix concava, 1-nervia, c. 0.7 cm. longa, supra basin vix 0.03 cm., superne 0.07 cm. lata. Labellum supra basin recurvulum, concavum, unguiculatum, 3-lobum, panduratum, glabrum, 3-nerviū, costis 2 longitudinalibus rectis approximatis crassiusculis contiguīs basin versus confluentibus circiter in medio labelli breviter acute terminantibus, expansum c. 0.52 cm., usque ad apicem loborum lateralium 0.23 cm. longum, ad lobos laterales bene 0.3 cm. latum, ungue quadrangulo, c. 0.075 cm. longo, 0.06 cm. lato; lobi laterales erecti, oblique trianguli, margine exteriorē rotundati, antice haud vel vix producti, superne irregulariter dentati; lobus medius multo major, latus, ambitu quinquangularis, e basi brevissime lateque unguiculata marginibus denticulata transverse oblongo-rhombeo-dilatatus, utrinque obtusus, abrupte triangulo-acuminatus, acutiusculus, c. 0.3 cm. longus, basi 0.23 cm., medio 0.35 cm. latus. Gynostemium subrectum, semiteres, dorso convexum, subtus concavum, c. 0.16 cm. longum, clinandrio transversō, margine erosulo, margine postico brevissime obtusangule triangulo-producto. Rostellum porrectum, aequilatera-liter trapeziforme, retusum. Stigma longitudinale, ovale, alte excavatum. Pes gynostemii cum

ovario angulum obtusum faciens, subrectus, linearis, truncatus, c. 0.2 cm. longus. Ovarium teres, subobconicum, c. 0.14 cm. longum; pedicellus tenuior, elongatus, 2.2 cm. longus.

Dutch New-Guinea: Rouffaer-river, confluent C, 250 m., epiphytical in primeval forest. (W. M. DOCTERS VAN LEEUWEN n. 10377, September 1926; "flowers cream-coloured").

A very distinct small species which in the shape of the lip shows some likeness with *D. confluens* J. J. S. from Boeroe, which, however, is very different in the long caudate sepals and petals and the longer lip with 3 keels on the midlobe.

Description from herbarium and flowers preserved in alcohol.

Dendrobium Vanleeuwenii J. J. S. n. sp.

Tab. VIII, 22.

Rhizoma repens, valde ramosum, caespitosum, tenuiusculum, c. 0.18—0.2 cm. diam., radicibus crassiusculis tortilibus. Pseudobulbi c. 0.5—0.6 cm. dissiti, cum rhizomate angulum acutum facientes, erecti vel adscendentes, e basi fusiformi-incrassata c. 1.2—1.6 cm. longa 0.5—0.6 cm. diam. in collum tenue sicco angulatum nitidulum c. 2.25—6.5 cm. longum contracti. Folium lineare, apice aequaliter vel leviter inaequaliter acutiuscule vel obtusiuscule triangulo-bidentatum, basi sensim paululum angustatum conduplicatumque, rigide coriaceum, c. 3.5—6.3 cm. longum, 0.3 cm. latum. Inflorescentiae 1-florae, pedunculo tenui, c. 0.85 cm. longo, spatha lineari, compresso, nitida, straminea, 0.85—1.4 cm. longa, c. 0.1 cm. lata. Bractea minima, adpressa, triangula. Flos mediocris. Sepalum dorsale lineare, apicem versus sensim angustatum, acutum, canaliculatum, 5-nervium, c. 3 cm. longum, basi fere 0.3 cm. latum. Sepala lateralialia ad pedem gynostemii decurrentia, mentum conicum cum ovario angulum acutum faciens vix incurvulum obtusum dorso leviter convexum c. 0.5 cm. longum formantia, e basi oblique triangulo-dilatata margine antico rotundata lineari-caudata, acuta, falcata, canaliculata, 4-nervia, c. 3.1 cm. longa, basi bene 0.6 cm., supra basin 0.25 cm. lata. Petala anguste linearia, apice filiformia, 3-nervia, c. 2.7 cm. longa, bene 0.1 cm. lata. Labellum oblique erectum, cum pede gynostemii angulum acutum faciens, vix curvulum, apice abrupte reflexum (an semper?), 3-lobum, lobis lateralibus erectis canaliculatum, 5-nervium, costis 2 longitudinalibus parallelis simplicibus superne magis approximatis ad basin lobi intermediarii terminantibus basin labelli non plane attingentibus, explanatum c. 1.25 cm. longum; lobi laterales brevissimi, basi lati, antice non producti, leviter rotundati, hypochylium obovatum c. 0.55 cm. longum 0.44 cm. latum formantia; lobus intermedius oblongus, c. $\frac{1}{3}$ superiore acutatus, acutiusculus, subtus infra apicem denticulo instructus, pulvino pilorum clavatorum lanceolato e basi usque ad c. $\frac{1}{3}$ infra apicem, c. 0.7 cm. longus, basi 0.23 cm., superne 0.3 cm. latus. Gynostemium breve, oblique conicum, dorso convexum, absque anthera bene 0.2 cm. longum, clinandrio excavato, filamento triangulo, auriculis dentatis. Anthera cucullata, antice angulato-suborbicularis, dorso gibbosa, apice truncato erosula, c. 0.1 cm. lata. Stigma alte excavatum, longitudinale, oblongum. Pes gynostemii cum ovario angulum acutum, cum gynostemio angulum obtusum faciens, vix incurvulus, late linearis, truncatus, fere 0.5 cm. longus. Ovarium c. 0.3 cm. longum; pedicellus tenuis, c. 4.4 cm. longus.

Dutch New-Guinea: Rouffaer-river, confluent C, 300 m., river bank, epiphytical. (W. M. DOCTERS VAN LEEUWEN n. 10336, September 1926; "flowers light red, lip yellow").

Near *D. mamberamense* J. J. S. but with relatively a much longer and narrower midlobe, shorter keels not ending in a free portion.

The flowers were overblown so that the colour probably had changed.

Description from herbarium and flowers preserved in alcohol.

Dendrobium isthmiferum J. J. S. n. sp.

Tab. VIII, 23.

Rhizoma breve, valde ramosum. Pseudobulbi approximati, validiusculi, cauliformes, basin versus sensim paululum incrassati, sicco angulati, apice breviter dilatati et longitudinaliter costati, atri, nitidi, c. 19—32 cm. longi, apice 0.7—0.8 cm. lati. Folium satis parvum, oblongum, obtusum, obtuse bilobulum, basi brevissime contracta conduplicataque apicem caulis $\frac{2}{3}$ amplexans, costa media dorso prominente, supra subtusque dense prominule nervosum, coriaceum, c. 6.75—10 cm. longum, 2.4 cm. latum. Inflorescentia fascicularis, pedunculis unifloris, c. 0.6—1.4 cm. longis, spatha parva, compressa, anguste triangula, c. 1—1.5 cm. longa. Bractea minima, subobsoleta, adpressa. Flos mediocris. Sepalum dorsale lineare, obtusiusculum, basi satis conspicue dilatatum, canaliculatum, 5(-7)-nervium, c. 3.2 cm. longum, basi 0.5 cm., medio 0.14 cm. latum. Sepala lateralia ad pedem gynostemii decurrentia, mentum cum ovario angulum acutum vel subrectum faciens incurvulum obtusum c. 0.65 cm. longum formantia, e basi margine antico oblique rotundato-triangulo-dilatata linearia, obtusiuscula, supra basin falcatulo-decurva, canaliculata, 5(-7)-nervia, c. 3.3 cm. longa, basi 0.85 cm., medio bene 0.1 cm. lata. Petala oblique linearia, basin versus paululum dilatata, canaliculata, superne subteretia, acuta, 3-nervia, c. 2.7 cm. longa, basi 0.24 cm., medio 0.075 cm. lata. Labellum basi erectum, in c. $\frac{1}{4}$ supra basin et in $\frac{1}{4}$ infra apicem recurvum, concavum, 3-lobum, parte mediana subtus leviter ventricosa et plicis longitudinalibus introrsis limitata, 5-nervium, costis 2 in parte inferiore valde approximatis rectis satis crassis ultra flexum bene tenuioribus dense undulatis arcuato-divergentibus curvatis ad basin lobi intermedi terminantibus, inter partes undulatas papillosum, inexpandum fere 1.1 cm., expansum 1.35 cm. longum; lobi laterales incurvi, oblique late trianguli, obtusi, margine antico irregulariter marginati undulatique, hypochylium magnum transverse rhombeum basi cuneato-contractum apice aequilateraliter trapeziformi-contractum 0.9 cm. longum basi 0.22 cm. medio 1.1 cm. apice 0.3 cm. latum formantes; lobus intermedius rectangule recurvus, marginibus involutis, undulatus, abrupte dilatatus, transverse quadrangulus, angulis anticis irregulariter angulato-rotundatus, irregulariter marginatus, 0.48 cm. longus, 0.7 cm. latus. Gynostemium oblique conicum, dorso convexum, cum anthera 0.37 cm. longum, clinandrio excavato, truncato, margine breviter 7-dentato-crenato. Anthera cucullata, ambitu antice visa sexangulata, apice truncato papilloso-ciliolata, costula longitudinali sulcis 2 limitata donata, 0.175 cm. lata. Stigma longitudinale, ovale. Pes gynostemii cum ovario angulum acutum vel subrectum faciens, incurvulus, lineari-oblongus, truncatus, inferne costa longitudinali lata humili convexa versus apicem dilatata in $\frac{3}{5}$ partibus supra basin subcalloso-terminante instructus, apice sulcis 2 longitudinalibus leviter convexo-tricostulatus, bene 0.6 cm. longus. Ovarium breve, 6-sulcatum, c. 0.4 cm. longum; pedicellus teres, 2.2 cm. longus.

Dutch New-Guinea: Rouffaer-river, 175 m., hills, epiphytical in primeval forest. (W. M. DOCTERS VAN LEEUWEN n. 10017, August 1926; "flowers light yellow, darker yellow towards the tips, lip bordered white, centre yellow, with red streaks, base red").

In the shape of the labellum this plant is very different from any of the species known to me.

The contracted upper portion of the hypochylum, which I have described as a part of the lateral lobes may also be considered to belong to the midlobe.

Description from herbarium and two flowers preserved in alcohol.

Dendrobium auricolor J. J. S. in Bull. Dép. Agric. Ind. Néerl. XLV (1911), 3; in Nova Guinea VIII (1911), 549, t. LXXXVII D.

Dutch New-Guinea: Rouffaer-river, confluent C, 250 m., primeval forest. (W. M. DOCTERS VAN LEEUWEN n. 10384, September 1926; "flowers brickred").

The material consists in a sterile dried plant and a closed flower preserved in alcohol. Hence, probably, the flowers are said to be brick red, whereas they are of the most beautiful golden yellow when opened.

Sect. Desmotrichum.

Dendrobium simplicicaule J. J. S. in Nova Guinea XIV (1929), 409, t. LXI, 60.

Dutch New-Guinea: Mamberamo, opposite Albatros-bivouac, 100 m., terrestrial on rocky ground in thick moss under small shrubs. (W. M. DOCTERS VAN LEEUWEN n. 9568, July 1926; "flowers very light cream-coloured").

This plant belongs probably to *D. lonchigerum* Schltr.

Sect. Rhopalanthe.

Dendrobium Mac Farlanei F. v. Muell. Descr. notes Pap. pl. II (1876), 29; etc.

Dutch New-Guinea: Van Rees-mountains, Edi-falls, 60 m., epiphytial in primeval forest along river, common. (W. M. DOCTERS VAN LEEUWEN n. 9395, June 1926; "flowers very light green with rose streaks").

Sect. Aporum.

Dendrobium pseudocalceolum J. J. S. in Bull. Dép. Agric. Ind. Néerl. V (1907), 34; etc.

Dutch New-Guinea: Mamberamo, Albatros-bivouac, 75 m., epiphytial in thin forest on hill ridge. (W. M. DOCTERS VAN LEEUWEN n. 9509, July 1926; "flowers white with thin red stripes").

Sect. Monanthos.

Dendrobium poneroides Schltr. in Fedde Rep. X (1911), 251; etc.

Dutch New-Guinea: Rouffaer-river, confluent C, 250 m., epiphytial in primeval forest. (W. M. DOCTERS VAN LEEUWEN nrs. 10378 and 10442, September 1926).

Dendrobium aridum J. J. S. n. sp.

Tab. IX, 24.

Rhizoma abbreviatum, valde ramosum, radicibus crassis tortilibus. Caules numerosi, approximati, erecti, simplices, tenues, firmi, leviter flexuosi, compressi, ad c. 33 cm. longi, 0.1 cm. lati, internodiis ad c. 1.9 cm. longis, superioribus decrescentibus. Folia erecta, linearia, apice haud vel vix oblique breviter obtuse bilobula, basi longius cuneato-angustata leviterque torta, 3-nervia, costa media nervisque exterioribus margine approximatis sicco subtus promi-

nulis, pluribus nervis tenuioribus, sicco papyracea, ad c. 4.8 cm. longa, 0.25 cm. lata; vaginae tubulosae, compressae, internodia subaequantes, apice truncatae, superne leviter longitudinaliter sulcatae transverseque rugulosae, 0.14—0.16 cm. latae. Inflorescentiae supra medium internodiorum ortae, vaginam antice perforantes, brevissimae, 1-florae, pedunculo brevissimo. Bractea minima, triangula. Flos 0.75 cm. longus, 0.8 cm. latus. Sepalum dorsale cum ovario angulum obtusum faciens, apice recurvulum, basi concavum, ceterum convexum, triangulum, obtusum, 3-nervium, c. 0.46 cm. longum, fere 0.3 cm. latum. Sepala lateralialia cum pede gynostemii mentum late conicum cum ovario angulum acutum faciens valde incurvum dorso valde convexum obtusissimum c. 0.4 cm. longum formantia, apice recurva, basi concava, ceterum convexa, oblique triangula, margine postico sigmoidea, margine antico subrecta, obtusa, basi rotundata, 5-nervia cum nervis 2 additis, c. 0.57 cm., margine antico 0.675 cm. longa, basi bene 0.5 cm. lata. Petala oblique recurvula, anguste oblonga, obtusa, 3-nervia, c. 0.475 cm. longa, 0.16 cm. lata. Labellum oblique erectum, vix recurvulum, concavum, 3-lobum, carnosum, 3-nervium, callo parvo reverso rotundato supra basin, explanatum ambitu subovale, c. 0.575 cm., usque ad apicem loborum lateralium 0.3 cm. longum, fere 0.4 cm. latum; lobi laterales erecti, apice libero porrecti, brevissime triangulo-dentiformes, obtusi, margine incrassati, hypochylium semi-ovale formantes; lobus intermedius latus, basi latus, transverse subovalis, obsolete quinquangularis, brevissime obtuse apiculatus, praesertim apicem versus carnosio-incrassatus, c. 0.275 cm. longus, 0.35 cm. latus. Gynostemium oblique conicum, cum anthera 0.15 cm. longum, clinandrio concavo, filamento parvo subulato, auriculis brevibus leviter rotundatis denticulatis. Anthera cucullata, ambitu subquinquangularis, dimidio superiore abrupte dilatata, truncata, dorso rotundata retusaque, c. 0.1 cm. lata. Pollinia 4, brevia, crassa, interiora quam exteriora tenuiora, c. 0.05 cm. longa. Rostellum recurvum, semiorbiculare, retuso-bilobulum, convexum. Stigma transverse rotundato-quadrangulum. Pes gynostemii cum ovario angulum acutum faciens, valde incurvus, oblongus, truncatus, concavus, dorso costa longitudinali convexa humili sulcis inconspicuis limitata donatus, fere 0.4 cm. longus. Ovarium oblique obconicum, 6-sulcatum, fere 0.2 cm. longum; pedicellus tenuior, teres, 0.23 cm. longus.

Dutch New-Guinea: Nassau-mountains, Exploration-bivouac, 1200 m., epiphytial in primeval forest. (W. M. DOCTERS VAN LEEUWEN n. 10778, October 1926; "flowers light yellow, lip red").

This plant is certainly a near ally of *D. obovatum* Schltr. and, indeed, I have thought that it might be identical with it. According to SCHLECHTER's description and sketch the differences appeared, however, to be too great; the roots are not filiform, the leaves much longer, the petals not linear, the hypochylium not obovate and much broader, the epichylium not subretuse but extended in a short apiculus.

Description from herbarium and flowers preserved in alcohol.

Dendrobium piestocaulon Schltr. in Schum. et Laut. Nachtr. Fl. D. Schutzgeb. Südsee (1905), 173; etc.

var. ***kauloense*** Schltr. Orch. D. N. Guinea (1912), 632.

Dutch New-Guinea: Rouffaer-river, 175 m., hills, epiphytial. (W. M. DOCTERS VAN LEEUWEN n. 10022, August 1926; "flowers light yellow, lip dark red, end dark yellow").? Mamberamo, opposite Albatros-bivouac, 100 m., terrestrial on summit of hill in thin forest. (W. M. DOCTERS VAN LEEUWEN n. 9561, July 1926; "flowers white or cream-coloured, lip with dark red").

Under nrs. 9537 and 9936 another species or variety with narrower leaves has been collected but more material is wanted to get certainty.

Sect. *Grastidium*.

Dendrobium angustispathum J. J. S. n. sp. — *D. acuminatissimum* Lndl. var. *mamberamense* J. J. S. in *Nova Guinea* XIV (1929), 411.

Tab. IX, 25.

Rhizoma brevissimum, ramosum, radicibus crassiusculis caulibus vix crassioribus. Caules approximati, simplices, tenues, inferne teretes, superne compressi, firmi, nitidi, ad c. 45—60 cm. longi, 0.18 cm. diam., internodiis ad c. 2.7—3 cm. longis, superioribus decrescentibus. Folia patentia, linearia, apicem versus sensim angustata, apice conduplicato-acuta, edentata, supra basin brevissime contracta utrinque rotundata, costa media supra sulcata subtus prominente, subrigidule papyracea, c. 9—11 cm. longa, 0.36—0.4 cm. lata; vaginae tubulosae, internodia superantes, apicem versus minute verruculoso-rugulosae, praesertim versus apicem nigropunctatae, apice laminae opposito dente adpresso triangulo obtuso ruguloso donatae. Inflorescentiae numerosae, infra nodum vaginas 2 perforantes, patentissimae, brevissimae, 2-, saepe 3-, raro 1-florae, nonnullis vaginulis tubulosis lateraliter compressis ad basin, vaginula exteriori suboblique semiovali rotundata punctata c. 0.16 cm. longa, vaginula secunda multo longiore versus apicem angustata parce punctata c. 0.7 cm. longa, vaginula tertia secundam superante membranacea epunctata c. 1.1 cm. longa, pedunculo lateraliter compresso fere 0.4 cm. longo. Bractee adpressae, brevissimae, triangulae. Flores conspicui. Sepalum dorsale e basi sensim paululum dilatata lineari-filiforme, canaliculatum, 3-nervium, nervis exterioribus basi furcatis, c. 5 cm. longum, basi 0.3 cm. latum. Sepala lateralalia cum pede gynostemii mentum subconicum cum ovario angulum subrectum faciens apice incurvulum obtusum c. 0.4 cm. longum formantia, e basi subelongato-triangula valde falcata lineari-filiformi-angustata, canaliculata, nervis sepali dorsalis, c. 4.1 cm. longa, basi 0.525 cm. lata. Petala oblique lineari-filiformia, canaliculata, 3-nervia, c. 3.7 cm. longa, basi 0.125 cm. lata. Labellum erectum, valde recurvum, concavum, 3-lobum, 5-nervium, costa longitudinali recta crassa dorso applanata glabra a basi ad basin lobi intermediarii obtuse terminante, expansum ambitu e basi cuneata ellipticum, bene 1 cm., usque ad apicem loborum lateralium 0.725 cm. longum, bene 0.6 cm. latum; lobi laterales erecti, falcatulo-incurvi, e basi oblique triangula sensim angustato-producti, apice recurvuli, anguste obtusi, margine crenulati, margine antico versus basin lacerati, intus apice excepto sparse muriculato-papilloso, margine antico c. 0.225—0.24 cm. longi; lobus intermedius ovato-triangulus, apice subulato-productus, margine alte lineari-laceratus, intus longe muriculato-villosus, c. 0.475 cm. longus, 0.5 cm. latus. Gynostemium cum ovario angulum obtusum faciens, subrectum, oblique conicum, apice leviter contractum, dorso convexum, subtus concavum, 0.3 cm. longum, clinandrio excavato, transverse ovali, filamentum e basi triangula subulato brevi, auriculis oblique quadrangulis oblique truncatis repandulo-denticulatis. Anthera cucullata, a latere visa triangula, antice visa quinquangularis, apice breviter producta angustata truncata, dorso rotundata, bene 0.1 cm. lata. Pollinia 4, lateraliter compressa, in corpuscula 2 oblonga unita, interiora quam exteriora tenuiora, 0.1 cm. longa. Stigma alte excavatum, longitudinale, ovale. Pes gynostemii cum ovario angulum subrectum faciens, linearis, leviter concavus, apice

incurvulo excavatus, infra excavationem sulcis 2 longitudinalibus 3-costulatus, 0.4 cm. longus. Ovarium subteres, leviter trigonum, 6-sulcatum, c. 0.36 cm. longum; pedicellus teres, 0.5 cm. longus.

Dutch New-Guinea: Mamberamo, Pionier-bivouac, 10 cm., epiphytical. (H. J. LAM n. 614 (type!), 14 July 1920; "leaves light green, sepals and petals white, lip and spur light salmon-coloured, bordered red in the middle, tip light yellow, column red and white, ovary greenish white, slightly suaveolent"). Same locality, opposite Albatros-bivouac, 100 m., terrestrial on rocky ground under thin coppice. (W. M. DOCTERS VAN LEEUWEN n. 9567, July 1926; "flowers white, lip with violet markings, underside orange").

The material collected by Prof. Dr. DOCTERS VAN LEEUWEN convinced me that the plant is specifically distinct from *D. acuminatissimum* Lndl.

Description from herbarium and flowers preserved in alcohol.

Dendrobium plumilobum J. J. S. n. sp.

Tab. IX, 26.

Rhizoma breve, ramosum, radicibus numerosis crassis cauli aequicrassis tortilibus. Caules approximati, fasciculati, simplices, rigidi, teretes, nitiduli, c. 50 cm. longi, 0.15—0.175 cm. diam., internodiis c. 3—1 cm. longis. Folia patentia ad patentissima, graminea, linearia, apicem versus sensim angustata, plus minusve inaequaliter anguste bidentata, basi breviter contracta cauli adpressa, sicco leviter concava, costa media supra sulcata subtus minute prominente, rigida, tenuiter coriacea, ad c. 8.5 cm. longa, 0.45 cm. lata, superiora decrescentia; vaginae tubulosae, internodia aequantes vel paululum superantes, superne prominule nervosae et plus minusve verruculoso-rugulosae, puncticulatae, apice laminae opposito dente conspicuo adpresso triangulo obtuso concavo instructae. Inflorescentiae vaginas 1—2 perforantes, plerumque patentes, brevissimae, 2-florae, vaginulis tubulosis lateraliter compressis ad basin, vaginulis exterioribus brevibus obtusis coriaceis ad c. 0.5—0.6 cm. longis, interioribus paulo longioribus membranaceis, pedunculo 0.53 cm. longo. Bractae minimae. Flores mediocres, sepalis dorso verruculosus. Sepalum dorsale e basi elongato-triangu- lineari-subfiliformi-caudatum, canaliculatum, carnosulum, 5-nervium, c. 2.25 cm. longum, parte dilatata bene 1 cm. longa, basi fere 0.4 cm. latum. Sepala lateralialia cum pede gynostemii mentum conicum cum ovario angulum acutum faciens leviter incurvulum obtusum c. 0.36 cm. longum formantia, e basi oblique oblongo-triangu- margine antico dilatata lineari-filiformi-caudata, canaliculata, 5-nervia, c. 2.1 cm. longa, parte dilatata 1 cm. longa, basi 0.57 cm. lata. Petala e basi oblique lanceolato-lineari filiformi-caudata, concava, 3-nervia, c. 2.1 cm. longa, parte dilatata c. 0.9 cm. longa, bene 0.2 cm. lata. Labellum erectum, valde recurvum, concavum, 3-lobum, 7-nervium, nervis exterioribus brevibus, costa longitudinali alta dorso applanata et paululum dilatata glabra ad basin lobi intermedi in appendicem liberam satis longam porrectam falcitulo-decurvam acutam terminante, expansum totum ambitu ovatum, c. 0.975 cm. longum, usque ad apicem loborum lateralium 0.56 cm. metiens, 0.625 cm. latum; lobi laterales erecti, porrecti, intus sparse muriculati verrucosique, parte libera oblique ovati, obtusi, margine antico lacerati, margine exteriori irregulariter erosuli, antice c. 0.2 cm. longi; lobus intermedius conspicuus, recurvus, ovatus, obtusus, subulato-apiculatus, longe lineari-laceratus, intus longe pilosus, c. 0.6 cm. longus, 0.45 cm. latus. Gynostemium oblique conicum, vix incurvulum, apice contractum, dorso convexum, cum anthera

c. 0.34 cm. longum, clinandrio alte excavato, subsemiorbiculari, auriculis porrectis, tenuibus, concavis, angustius quadrangulis, apice oblique truncatis denticulatisque. Anthera firmiter inserta, cucullata, antice visa suborbicularis, apice in appendicem angustiore transversam brevem constrictam apice vix rotundato-exciso-truncatam producta, c. 0.13 cm. lata. Stigma concavum, rotundato-triangulum, basi paulum dilatatum. Pes gynostemii cum ovario angulum acutum faciens, leviter incurvulus, oblongo-quadrangulus, truncatus, leviter concavus, crasse carnosus, 0.34 cm. longus. Ovarium 6-sulcatum, sulcis binis approximatis, 0.45 cm. longum; pedicellus teres, 1.3 cm. longus.

Dutch New-Guinea: Rouffaer-river, confluent C, 250 m., epiphytically in primeval forest. (W. M. DOCTERS VAN LEEUWEN n. 10313, September 1926; "flowers light yellow").

Differing from *D. laceratum* Schltr. in the short, broad, very blunt lateral lobes of the lip, the relatively much longer midlobe, the keel of the lip ending in a free portion, the quadrangular auricles of the column, the orbicular broadly rostrate anther.

Description from herbarium and somewhat withered flowers preserved in alcohol.

Dendrobium erectopatens J. J. S. in Bull. Jard. Bot. Buit. 2e sér. II (1911), 10; in Nova Guinea XII (1913), 52, t. XV, 41.

Dutch New-Guinea: Rouffaer-river, 175 m., hills, epiphytically in primeval forest. (W. M. DOCTERS VAN LEEUWEN no. 10037, August 1926; "flowers light yellow, lip inside with a small orange-red blotch").

Dendrobium igneum J. J. S. in Bull. Dép. Agric. Ind. Néerl. XIX (1908), 17; in Nova Guinea VIII (1909), 73, t. XXV, 79.

Dutch New-Guinea: Rouffaer-river, 175 m., hills, epiphytically in primeval forest. (W. M. DOCTERS VAN LEEUWEN n. 10034, August 1926; "flowers orange").

Dendrobium ostrinum J. J. S. in Bull. Dép. Agric. Ind. Néerl. XXXIX (1910), 10; in Nova Guinea VIII (1911), 556, t. XC A; Krzl. in Pflanzenr. Heft 45 (1910), 361.

var. ***ochroleucum*** J. J. S. in Nova Guinea XII (1913), 51.

Dutch New-Guinea: Mamberamo, opposite Albatros-bivouac, 100 m., summit of hill, thin forest, terrestrial. (W. M. DOCTERS VAN LEEUWEN n. 9588, July 1926; "flowers light yellow").
Rouffaer-river, 175 m., hills, epiphytically in primeval forest. (W. M. DOCTERS VAN LEEUWEN n. 10060, August 1926; "flowers cream-coloured, lip yellow with an orange blotch at the base").

Dendrobium fulgescens J. J. S. n. sp.

Tab. IX, 27.

Caules validi, elongati, simplices, inferne teretes, superne compressi, sectione transversa elliptici, nitidi, ad c. 75 cm. longi, 0.8 cm. lati, inferne vaginati, ceterum foliati, internodiis ad c. 4—4.5 cm. longis, superioribus decrescentibus. Folia patentissima, elliptico-oblonga, apice angustato recurvula conduplicataque, inaequaliter obtuse bilobula, basi leviter torta, margine in sicco anguste revoluta, coriacea, c. 7.5—11.5 cm. longa, 2.5—4.2 cm. lata; vaginae tubulosae, internodia subaequantes, apice truncatae, sicco dense longitudinaliter nervosae et praesertim antice atrofusce punctatae. Inflorescentiae infra nodos ortae, vaginam inferiorem antice infra apicem perforantes, brevissimae, 2-florae, pedunculo brevissimo, vaginulis incluso, vaginula

exteriore semiovali, c. 0.4 cm. longa, interiore longiore 0.8 cm. longa. Bractee adpressae, triangulae, obtusae, concavae, 0.2 cm. longae. Flores magni, petalis expansis c. 4.25 cm. lati, sepalis petalisque ut videtur plus minusve interdum valde recurvis convexis carnosulis. Sepalum dorsale oblongo-ovatum, obtusum, 7-nervium, c. 2.4 cm. longum, 1.1 cm. latum. Sepala lateralialia cum pede gynostemii mentum breve cum ovario angulum subrectum faciens incurvum obtusissimum c. 0.7 cm. longum formantia, oblique oblonga, apice angustata, obtusa, basi concava, superne obtusangule concava, dorso medio longitudinaliter convexo-incrassata, 7-nervia, c. 2.3 cm. longa, basi 1.1 cm. lata. Petala oblique oblongo-elliptica, obtusa, basi breviter contracta, 3-nervia, c. 2.25 cm. longa, fere 1.1 cm. lata. Labellum erectum, valde recurvum, 3-lobum, costa longitudinali supra basin incipiente alta dorso applanata et utrinque irregulariter crenata apicem versus decrescente et integerrima in lobo intermedia in canaliculam immersa circiter in medio lobi evanescente, subtus longitudinaliter sulcatum, expansum e basi obverse aequilateraliter trapeziformi in lobos laterales dilatatum, ambitu subovale, c. 1.75 cm., usque ad apicem loborum lateralium 0.8 cm. longum, ad lobos laterales 0.925 cm. latum; lobi laterales patentes, parallelogrammiformes, margine exteriore postice rotundati repandulique, superne erosuli, angulo antico fere rectanguli, intus irregulariter transverse incrassato-rugosi; lobus intermedius conspicuus, hypochyllo major, valde recurvus, convexus, e basi latissime subcuneata suborbicularis, breviter late obtuse apiculatus, margine superne tenui repanduloque, parte mediana carnosula sulcis tenuibus transverse rugulosa, c. 1.1 cm. longus et latus. Gynostemium longiusculum, rectum, conicum, sectione transversa obtusangule triangulum, cum anthera 0.7 cm. longum, clinandrio excavato, transverse quadrangulo, pariete postico in dentem triangulum crassum intus ad basin dente breviori tenuiore subulato donatum producto, auriculis porrectis quadrangulis truncatis erosulis. Anthera cucullata, rotundata, infra apicem constricta, truncata, c. 0.25 cm. lata. Rostellum crassum, recurvum. Stigma suborbiculare. Pes gynostemii cum ovario angulum subrectum faciens, incurvus, latus, oblongus, truncatus, concavus, 0.775 cm. longus. Ovarium obconicum, 6-sulcatum, c. 0.4 cm. longum; pedicellus teres, 1.2 cm. longus.

Dutch New-Guinea: Rouffaer-river, 175 m., hills, epiphytical in primeval forest. (W. M. DOCTERS VAN LEEUWEN n. 10019, August 1926; "flowers 'fraise' with white glittering points and a white median streak, lip white, side lobes streaked dark violet, at the base two orange blotches, delicious scent of Vanilla").

This plant is very near *D. exaltatum* Schltr., and indeed, in the case the colour was not so very different, I had taken it for a large flowered variety of the said species. Besides the colour of the larger flowers it differs from *D. exaltatum* in the blunt petals, the broader lip with a different keel and the truncate anther.

Description from herbarium and flowers preserved in alcohol.

Dendrobium recurvilabre J. J. S. in Meded. Herb. Leiden n. 23 (1915), 9; in Nova Guinea XII (1916), 307, t. CXII, 201.

Dutch New-Guinea: Rouffaer-river, 175 m., primeval forest, common on large trees, dependent epiphyte, often hanging down from horizontal branches like a curtain. (W. M. DOCTERS VAN LEEUWEN n. 9963, August 1926; "flowers light yellow, lip inside orange, spur white").

Dendrobium salicifolium J. J. S. n. sp.

Tab. X, 28.

Rhizoma breve, radicibus tenuiusculis dense breviter velutino-papillosis. Caules approximati, simplices, tenues, leviter flexuosi, c. 70 cm. longi, internodiis c. 1.5—1.8 cm. longis. Folia erecto-patentia, lanceolata, basin apicemque versus angustata, altius plerumque subaequaliter obtuse bidentata, apice subirregulariter marginata, nervis praesertim 7 majoribus sicco subtus prominentibus, sicco coriacea, rigidula, c. 5.3—6 cm. longa, infra medium 0.8—1.3 cm. lata; vaginae tubulosae, internodia superantes, apice laminae opposito dente conspicuo obtuso adpresso donatae. Inflorescentiae 2 vaginas perforantes, brevissimae, 2-florae. Bractae minimae, adpressae, triangulae, obtusae, concavae. Flores carnosii, sepalis petalisque apice incurvis concavis dorso versus apicem vix verruculosi. Sepalum dorsale ellipticum, obtusum, minute apiculatum, infra medium paululum contractum, 7-nervium, c. 1.3 cm. longum, 0.7 cm. latum. Sepala lateralium cum pede gynostemii mentum brevissimum latum truncatum retusum formantia, oblique oblonga, subfalcata, obtusa, valde concava, margine antico in c. $\frac{1}{3}$ supra basin plica introrsa constricta, superne incrassata margineque incurva, c. 1.4 cm. longa, 0.65 cm. lata. Petala oblique oblongo-subspathulata, ex ungue brevi lato sensim elliptico-dilatata, obtusa, valde concava, apice incrassata, 3-nervia, nervo 1 brevi utrinque addito, fere 1.2 cm. longa, supra basin 0.275 cm., superne 0.56 cm. lata. Labellum erectum, valde recurvum, carnosum, parte inferiore late canaliculatum, parte recurva praesertim medio valde convexum cum marginibus patentibus, subelobatum, subtus longitudinaliter sulcatum, dimidio inferiore costa longitudinali lata verrucosa instructum et utrinque irregulariter transverse lamellato-rugosum, dimidio superiore praesertim parte mediana pulvinato-incrassata transverse rugosum, explanatum ambitu obovatum, c. 0.675 cm. longum, hypochylis obverse aequilalateraliter trapeziformi, basi utrinque auricula minuta reversa obtusa instructo, denticulato, c. 0.3 cm. longo, basi 0.23 cm., apice 0.45 cm. lato, epichylis latiore, sexangulato-semiorbiculari, apice truncato breviter lobulato-crenato, ceterum crenulato, angulis basilaribus rotundato, c. 0.38 cm. longo, 0.55 cm. lato. Gynostemium oblique conicum, rectum, apice antice contractum, dorso convexum, cum anthera 0.34 cm. longum, clinandrio excavato, filamento dentiformi, auriculis porrectis, parallelis, angulato-rotundatis, subirregulariter marginatis. Anthera cucullata, transverse sexangulata, apice truncata, c. 0.18 cm. lata. Rostellum truncatum. Stigma parvum, alte excavatum, rotundato-quadrangulum. Pes gynostemii cum ovario angulum obtusum faciens, leviter incurvulus, linearis, truncatus, apice leviter excavatus cum costula longitudinali, carnosus, 0.35 cm. longus. Ovarium crassiusculum, obconicum, 6-sulcatum, sulcis binis approximatis, apice spurie 3-sulcatum, cum pedicello 0.65 cm. longum.

Dutch New-Guinea: Rouffaer-river, confluent C, 250 m., epiphytically in primeval forest. (W. M. DOCTERS VAN LEEUWEN n. 19263, September 1926; "flowers white, inside nearly wholly spotted light violet, lip with an orange dot").

In the shape of the lip this is well distinguished from the other species of the section hitherto described.

Description from herbarium and flowers preserved in alcohol.

Dendrobium Pulleanum J. J. S. in Bull. Dép. Agric. Ind. Néerl. XLV (1911), 4; in Nova Guinea VIII (1911), 557, t. XC C.

Dutch New-Guinea: Rouffaer-river, confluent C, 250 m., epiphytical in primeval forest. (W. M. DOCTERS VAN LEEUWEN n. 10294, September 1926; "flowers dark wine-red, lip white").

Sect. *Latouria*.

Dendrobium macrophyllum A. Rich. Sert. Astrol. (1834), 22, t. 9; etc.

Dutch New-Guinea: Rouffaer-river, above Splitsings-bivouac, 100 m., epiphytical in *Pandanus*-forest on sand-bank. (W. M. DOCTERS VAN LEEUWEN n. 9724, August 1926).

Sect. *Ceratobium*.

Dendrobium violaceoflavens J. J. S. in Nova Guinea XIV (1929), 420, t. LXV, 72.

Dutch New-Guinea: Mamberamo, Pionier-bivouac, 50 m., cut open ground, on an old tree. (W. M. DOCTERS VAN LEEUWEN n. 9377, June 1926; "flowers yellow, lip and centre violet; nat. name Nawodjobwaam").

Sect. *Oxyglossum*:

Dendrobium allioides J. J. S. n. sp.

Tab. X, 29.

Rhizoma breve, ramosum, radicibus tenuibus tortilibus. Pseudobulbi valde approximati, c. 3—4 cm. longi, c. 5-folii, initio vaginis conspicuis amplexentibus acutis ad c. 6 cm. longis inclusi. Folia articulata, linearia, apice breviter acute acuminata conduplicataque, rigide coriacea, c. 14.5—30 cm. longa, 0.275—0.4 cm. lata; vaginae tubulosae, parte superiore canaliculatae, se arcte cauliformi-amplexentes, c. 4—5 cm. longae. Inflorescentia pseudoterminalis, brevissima, 3-flora, pedunculo c. 0.3 cm. longo, nonnullis vaginulis tubulosis imbricatis superioribus longioribus et in bracteas vergentibus. Bracteae erectae, e basi breviter tubulosa ovato-lanceolatae, apice marginibus involutis subulato-acuminatae, concavae, dorso more vaginularum minutissime furfuraceo-puncticulatae, c. 1.9—2.2 cm. longae. Flores in sectione conspicui, c. 3.7 cm. longi, sepalis petalisque erectis. Sepalum dorsale oblongo-ovatum, subulato-acuminatum, 5-nervium, c. 1.8 cm. longum, 0.57 cm. latum. Sepala lateralia lacinia angusta ad pedem gynostemii decurrentia, marginibus anticis longitudine c. 1.15 cm. connata, mentum ovario arcte adpressum elongatum anguste calcariforme apice truncatum dorso longitudinaliter sulcatum c. 2 cm. longum formantia, parte libera oblique anguste triangula, subulato-acuminata, apiculo lateraliter compresso, concava, apice canaliculata, c. 8-nervia, costa media dorso versus apicem carinata, parte libera 1.9 cm., margine antico 2.8 cm. longa, basi 1.2 cm. metientia. Petala oblique lanceolata, subulato-acuminata, basi subunguiculato-angustata, margine praesertim versus apicem minute papillosa, leviter concava, apice canaliculata dorsoque carinata, 3-nervia, c. 1.5 cm. longa, 0.42 cm., basi fere 0.2 cm. lata. Labellum pedi gynostemii gynostemioque arcte adpressum, gynostemium superans, pedi longitudine 1.4 cm. adnatum, concavum, lineare, superne paululum dilatatum, apice marginibus incurvis leviter acute acuminatum, apiculo lateraliter compresso, expansum apice sensim angustatum, ecallosum, 7-nervium, totum c. 3.15 cm. longum, parte libera 1.7 cm. longa, basi 0.26 cm., superne 0.375 cm. lata. Gynostemium breve, angulato-semiteres, supra visum oblongo-quadrangulum, c. 0.37 cm. longum, clinandrio excavato,

transverso, filamento curvato subulato, auriculis conspicuis, porrectis, concavis, oblique rotundato-triangularis, erosulis, apice subdentifero-acutis. Anthera cucullata, antice plana, transverse quinquangularis, apice incurvulo truncata, c. 0.23 cm. lata. Pollinia 4, in corpuscula 2 oblique oblongo-obovata supra convexa subtus leviter concava unita, c. 0.15 cm. longa. Stigma quadrangulum, margine inferiore rotundatum. Pes gynostemii elongatus, ovario adpressus, rectus, linearis, canaliculatus, medio leviter longitudinaliter convexus, parte labello adnata membrana adnata apice longitudinaliter oblongo-excisa basi glandulam longitudinalem linearem includente obtecta, dorso longitudinaliter sulcatus, c. 2 cm. longus. Ovarium pedicellatum quinquealatum, alis apicem versus valde dilatatis minute erosulis papillosisque, alis 3 posticis apice laxè undulatis, ovarii faciei antico costa in sulcum pedis gynostemii quadrante instructo, 2.4 cm. longum.

Dutch New-Guinea: Nassau-mountains west, 1500 m., epiphytically in primeval forest. (W. M. DOCTERS VAN LEEUWEN n. 10974, October 1926; "flowers light violet, tip of lip orange").

Nearly related to *D. quinquecostatum* Schltr., *D. igneoviolaceum* J. J. S., *D. raphiotes* Schltr., *D. pityphyllum* Schltr., but differing in the five-leaved pseudobulbs, the very much longer leaves, the five-winged ovary with only the three posterior wings undulate, whereas the anterior face of the ovary is provided with a rib.

Description from a single dried specimen and flowers preserved in alcohol.

Dendrobium cyanocentrum Schltr. in Schum. et Laut. Nachtr. Fl. D. Schutzgeb. Südsee (1905), 160.

Dutch New-Guinea: Rouffaer-river, confluent C, 250 m., epiphytically in primeval forest, high in a tree. (W. M. DOCTERS VAN LEEUWEN n. 10439, September 1926; "flowers cream-coloured, lip darker yellow with longitudinal violet veins, top of column dark violet-blue").

Sect. *Pedilonum*.

Dendrobium angustiflorum J. J. S. in Fedde Rep. XI (1912), 132; in Nova Guinea XII (1916), 336, t. CXX, 221.

Dutch New-Guinea: Mamberamo, Albatros-bivouac, 60 m., epiphytically in primeval forest on riverbank. (W. M. DOCTERS VAN LEEUWEN n. 11396, December 1926; "flowers greenish white, lip with a green median stripe").

Dendrobium macrifolium J. J. S. n. sp.

Tab. X, 30.

Rhizoma breve, valde ramosum. Caules approximati, fasciculati, simplices, tenues, flexuosi, teretes, ad 28 cm. longi, 0.16 cm. diam. (in spiritu vini), internodiis 1.2—0.6 cm. longis. Folia basi patentia, recurvulo-patentissima, linearia, infra apicem constricta, acuta ad obtusiuscula, canaliculata, subtus convexa, rigida, c. 2.3—3.3 cm. longa, 0.16 cm., explanata fere 0.2 cm. lata; vaginae tubulosae, sicco subprominule nervosae. Inflorescentiae e nodis in flexu, brevissimae, 1—2-florae, pedunculo nonnullis vaginulis infundibuliformibus donato. Bractae rachidem amplexantes, cucullatae, latae, obtusissimae, c. 0.15—0.2 cm. longae. Flores parvi, c. 0.68 cm. longi, 0.625 cm. lati. Sepalum dorsale recurvulum, subovatum, apicem versus angustatum, obtusum, basi latum, convexus, 3-nervi, c. 0.36 cm. longum, fere 0.2 cm. latum. Sepala lateralia lacinia oblique oblonga ad pedem gynostemii decurrentia, marginibus anticis longitu-

dine c. 0.16 cm. connata, mentum reversum ovario adpressum leviter recurvulum calcariforme leviter a dorso compressum oblongum truncatum subretusum c. 0.36 cm. longum 0.175 cm. latum formantia, parte libera porrecta, oblique ovata, apicem versus angustata, acuta, minute apiculata, 5-nervia, costa media dorso ad apicem leviter incrassata, fere 0.4 cm. longa, margine antico 0.7 cm. longa, parte libera 0.23 cm. lata. Petala patentia, recurvula, oblique rhombea, acutiuscula, convexa, 3-nervia, c. 0.35 cm. longa, fere 0.15 cm. lata. Labellum basi pedi gynostemii longitudine c. 0.175 cm. in formam calcaris adnatum, ceterum pedi gynostemioque adpressum, concavum, spathulatum, subsimplex, carnosulum, intus superne incrassatione longitudinali convexa usque ad apicem producta in $\frac{1}{3}$ infra apicem in crura 2 decurrentia angulum anguste acutum facientia basin non attingentia partita, 5-nervium, explanatum totum c. 0.68 cm. longum, ungue lineari-oblongo, 0.38 cm. longo, parte libera c. 0.2 cm. longo 0.15 cm. lato, lamina ovata, brevissime acute apiculato-acuminata, superne obsolete constricta vix trilobata, fere 0.3 cm. longa, 0.24 cm. lata. Gynostemium rectum, oblongo-quadrangulum, dorso convexum, subtus concavum, 0.18 cm. longum, clinandrio transverso, filamento porrecto incurvulo subulato, auriculis brevioribus obtusis minute denticulatis. Anthera cucullata, antice plana, transverse curvato-quadrangula, dorso rotundata, apice subtruncata rotundato-excisa, 0.1 cm. lata. Pollinia 4, oblonga. Stigma altius excavatum, semiovale, basi rotundatum, apice truncatum. Pes gynostemii reversus, ovario adpressus, leviter recurvulus, apice incurvulus, oblongus, concavus, 0.33 cm. longus. Ovarium crassiusculum, 0.24 cm. longum; pedicellus bene tenuior, 0.25 cm. longus.

Dutch New-Guinea: Rouffaer-river, confluent C, 250 m., primeval forest, epiphytcal, high in the trees. (W. M. DOCTERS VAN LEEUWEN n. 10443, September 1926; "flowers light green, lip darker bright green").

In the structure of the flower this plant is a species of the section *Pedilonum*, in the very narrow canaliculate leaves it looks very distinct.

Description from herbarium and flowers preserved in alcohol.

Sect. *Calypetrochilus*.

Dendrobium codonosepalum J. J. S. n. sp.

Tab. X, 31.

Rhizoma brevissimum, ramosum, radicibus numerosis tortilibus. Caules approximati, sicco quadranguli cum lateribus concavis, 40 cm. superantes, lateribus c. 0.35 cm. latis, deinde plantas novellas emittentes, internodiis c. 0.8—1 cm. longis. Folia parvula, patentia, subovato-oblonga, apicem versus angustata, acuta vel acutiuscula, longius mucronata, basi obtusa leviter torta, praesertim versus apicem minutissime sed distincte crenulata, costa media dorso prominente, utrinque nervo 1 distincto nonnullisque nervis tenuioribus, rigide coriacea, c. 3.3—3.65 cm. longa, 1.2—1.45 cm. lata; vaginae tubulosae, internodia superantes, apice truncatae, valde verrucosae. Inflorescentiae e caulibus defoliatis, 2 vaginas perforantes, brevissimae, sessiles, pauciflorae, vaginulis bracteisque similibus, latis, concavis, dorso verruculosi. Flores conspicui, c. 3.5 cm. longi, sepalis circiter medium usque inter se connatis, concavis, 5-nerviis, tenuibus. Sepalum dorsale oblongum, 2.5 cm. longum, parte libera semiovali, rotundata, margine apicali leviter papillosa, c. 0.9 cm. longa, bene 1 cm. lata. Sepala lateralia lacinia triangula ad pedem gynostemii decurrentia, mentum reversum ovario adpressum conicum subrectum facie vix sigmoi-

deum $\frac{3}{5}$ partibus superioribus lateraliter compressum anguste obtusum 1 cm. longum formantia, bene 2.5 cm., tota bene 3.5 cm. longa, parte libera oblique semiovali, rotundata, apice leviter papillosa, c. 1 cm. longa, 1.25 cm. lata. Petala libera, anguste subspathulata, apicem versus sensim dilatata, rotundata, apice minute erosulo-fimbriata, leviter concava, 3-nervia, tenuia, c. 2.1 cm. longa, basi 0.175 cm., superne 0.43 cm. lata. Labellum parvulum, inferne longitudine 0.8 cm. pedi gynostemii in formam calcaris tenuis inferne paululum ampliati adnatum, ceterum gynostemio parallelum et paulo longius, leviter sigmoideum, concavum, subtus convexum, simplex, spathulatum, ecallosum, 5-nervium, tenue, apice margine rotundato-cucullato-inflexum, explanatum totum bene 1.6 cm. longum, ungue late lineari, c. 0.23 cm. lato, lamina ovali, bene 0.8 cm. longa, 0.65 cm. lata, cucullo extus sparse muriculato, apice inflexo utrinque erosulo medio longe fimbriato absque fimbriis c. 0.3 cm. alto. Gynostemium breve, crassum, a dorso compressum, rectum, dorso convexum, marginibus leviter subrotundato-obtusangule dilatatis, 0.34 cm. longum, clinandrio excavato, transverso, margine postico rotundato-exciso, filamento in sinu, curvulo, lineari-subulato, obtuso, auriculas aequante, auriculis oblique quadrangulis, oblique truncatis, margine postico minute lacinulatis. Anthera cucullata, quadrangula, lateribus leviter rotundata, apice truncato minutissime papillosa, dorso obtuse bilobula, 0.28 cm. lata. Pollinia 4, in corpuscula 2 oblique oblonga supra convexa subtus leviter concava unita, 0.16 cm. longa. Stigma majusculum, quinquangulare, margine inferiore rotundatum. Pes gynostemii reversus, ovario adpressus, rectus, linearis, basin versus dilatatus, costula longitudinali convexa cava apice excisa medio glandulam linearem includente instructus, c. 1.1 cm. longus. Ovarium pedicellatum rotundato-trigonum, 6-sulcatum, convexo-6-costatum, minutissime brunnescenti-puncticulatum, 1.7 cm. longum.

Dutch New-Guinea: Rouffaer-river, confluent C, 250 m., epiphytical in primeval forest. (W. M. DOCTERS VAN LEEUWEN n. 10402, September 1926; "flowers brick-red, when young with a violet hue").

A most interesting species on account of the more than halfway connate sepals. It demonstrates clearly that not too much value should be set upon the characteristic of connate sepals, at least in certain genera.

D. codonosepalum is a near ally of *D. trichostomum* Rchb. f., *D. oreogenum* Schltr. and *D. quadriquetrum* J. J. S. It resembles the latter in the long fringe of the lip but differs from all, besides the connate sepals, in the much larger flowers.

Description from a single dried specimen and flowers preserved in alcohol.

***Dendrobium paspalifolium* J. J. S. n. sp.**

Tab. XI, 32.

Caules approximati, elongati, ramosi, tenues, teretes, nitidi, c. 50 cm. longi, internodiis ad c. 2.4 cm. longis, superioribus decrescentibus. Folia patentia, anguste linearia, acuta, apice cartilaginee ciliolata, papyracea, rigidula, c. 5—8.5 cm. longa, 0.2—0.3 cm. lata; vaginae tubulosae, internodia superantes, apice truncato antice rotundato-excisae, fusco-punctatae, nervis primariis sicco vix prominulis. Inflorescentiae e nodis, brevissimae, cauli adpressae, c. 4-florae, pedunculo c. 0.3 cm. longo, vaginulis imbricatis superne accrescentibus et in bracteas vergentibus, rachide brevi. Bracteae triangulae, concavae. Flores c. 2.6 cm. longi, sepalis dorso sparse

minutissime atrofusce puncticulatis. Sepalum dorsale erectum, ovato-ovale, obtusum, subplanum, margine vix incurvulum, 5-nervium, c. 1.1 cm. longum, 0.63 cm. latum. Sepala lateralia lacinia oblique triangula ad pedem gynostemii decurrentia, marginibus anticis longitudine 0.375 cm. connatis, usque ad c. 1.1 cm. supra apicem menti conglutinata, mentum conspicuum deorsum spectans ovario adpressum apice incurvulum anguste conicum obtusum 1.65 cm. longum formantia, parte antica oblique ovato-triangula, obtusa, concava, 6-nervia, costa media dorso leviter obtusangule incrassata, fere 1.1 cm., margine antico 1.9 cm. longa, basi 1.65 cm. lata. Petala oblique subspathulato-oblonga, obtusa, apice minute papillosa-ciliolata, leviter concava, 3-nervia, c. 1.1 cm. longa, supra medium 0.44 cm. lata. Labellum pedi gynostemii longitudine c. 1.3 cm. in formam calcaris subteretis apice leviter incurvuli obtusi antice leviter ventricosi adnatum, medio fere rotundato-obtusangule recurvum gynostemio adpressum et longius, simplex, spathulatum, valde concavum, 7-nervium, ecallosum, explanatum c. 1.8 cm. longum, ungue oblongo, tota longitudine pedi gynostemii adnato, c. 0.825 cm. longo, fere 0.4 cm. lato, lamina longitudine c. 0.3 cm. pedi gynostemii adnata, late rhombea, margine apicali longitudinaliter plicato truncato breviter anguste serrato-lacinulato 0.375 cm. longo acutangule inflexo cucullum conicum obtusum formante, c. 1 cm. longa, 0.9 cm. lata. Gynostemium breve, latum, a dorso compressum, dorso convexum, marginibus rotundato-obtusangule dilatatum, absque anthera 0.35 cm. longum, clinandrio excavato, transverse oblongo, filamento incurvulo lineari obtuso, auriculis filamento brevioribus, porrectis, latis, plus minusve retusis, dente postico margine denticulatis, lobulo antico obtuso. Stigma concavum, margine inferiore rotundatum. Pes gynostemii ovario adpressus, magnam partem labello adnatus, apice incurvulus, leviter concavus, parte superiore membrana adnata apice longitudinaliter oblongo-excisa glandulam linearem includente obtectus, c. 1.6 cm. longus. Ovarium pedicellatum clavatum, leviter sigmoideum, 6-sulcatum, praesertim superne leviter puncticulatum, c. 0.25 cm. longum.

Dutch New-Guinea: Nassau-mountains west, 2500—2600 m., epiphytial in moss-grown forest. (W. M. DOCTERS VAN LEEUWEN nrs. 10845 and 10899, October 1926; "flowers base orange, apices yellow").

Differing from *D. mitriferum* J. J. S. in the thinner, weaker stems, much narrower longer leaves, not warty sheaths, fewer flowered inflorescences, from *D. angiense* J. J. S. in the longer, narrower leaves, the not warty sheaths, larger flowers, narrower petals, and from *D. dichroma* Schltr. in the fewer flowered inflorescences, longer and thinner mentum, much more curved lip.

Description from herbarium and flowers preserved in alcohol.

***Dendrobium vacciniifolium* J. J. n. sp.**

Tab. XI, 33.

Caules elongati, inferne longitudine c. 20 cm. radicantes, ramosi, tenues, superne flexuosi, c. 80 cm. longi, internodiis 0.6—1 cm. longis. Folia parva, sessilia, ovata, apicem versus angustata conduplicataque, obtusa vel acutiuscula, multinervia, praesertim costa media dorso prominente, sicco tenuiter coriacea, rigida, c. 0.9—2.8 cm. longa, 0.7—1.35 cm. lata; vaginae tubulosae, internodia superantes, apice truncatae, sicco prominenter nervosae, punctatae. Inflorescentiae e nodis, brevissimae, erectae, laxae c. 4-florae, pedunculo c. 0.6—1 cm. longo, vaginulis

amplectentibus infundibuliformi-tubulosis punctatis superioribus accrescentibus tecto, rachide flexuosa, c. 0.5—1.1 cm. longa. Bractee conspicuae, concavae, late ovatae, obtusae, dorso leviter verrucosae, sicco ad 1—1.2 cm. longae. Flores satis conspicui, c. 2.6 cm. lati, 3.3 cm. longi. Sepalum dorsale erectum, ovale, obtusum, leviter retusum, apice minutissime denticulatum, leviter convexum, 5(—7)-nervium, fere 1.5 cm. longum, 0.8 cm. latum. Sepala lateralia lacinia oblique oblongo-triangulara ad pedem gynostemii decurrentia, marginibus anticis longitudine c. 0.45 cm. connata, mentum deorsum spectans ovario adpressum anguste conicum lateraliter compressum antice visum sublineare truncato-obtusum c. 1.75 cm. longum formantia, parte antica recurva, oblique triangulo-ovata, obtusa, leviter convexa cum canalicula inconspicua, 7-nervia, costa media dorso leviter obtusangule incrassata, c. 1.6 cm., margine antico 2.5 cm. longa, basi 1.8 cm. lata. Petala oblique oblongo-elliptica, obtusa, apice vix erosula, 3-nervia, c. 1.6 cm. longa, 0.6 cm. lata. Labellum longitudine 0.65 cm. pedi gynostemii in formam calcaris adnatum, ceterum pedi gynostemioque parallelum, infra medium obtusangule recurvum, valde concavum, spathulatum, gynostemium superans, 7-nervium, incrassatione V-formi intus in flexu inter unguem et laminam, margine apicali c. 0.7 cm. longo acutangule inflexo longitudinaliter plicato cucullum conspicuum obtusum margine serrulatum medio in lobulum transverse rectangule oblongum apice truncatum et leviter trilobulum longius lacinulatum productum, expansum c. 2.4 cm. longum, ungue oblongo, canaliculato, c. 0.95 cm. longo, lamina late rhombea, c. 1.425 cm. longa, 1.4 cm. lata. Gynostemium crassum, oblongo-quadrangulum, dorso convexum, marginibus vix dilatatum, 0.6 cm. longum, 0.5 cm. latum, clinandrio excavato, transverso, filamento lineari-subulato, auriculas superante, auriculis porrectis, latis, rotundatis, margine postico dente triangulo falcato instructis. Anthera magna, cucullata, antice visa ambitu quadrangula, apice incurvulo truncata denseque papillosa, dorso rotundato-bilobula, c. 0.36 cm. lata. Pollinia 4, in corpuscula 2 oblique oblonga supra convexa subtus leviter concava unita, 0.275 cm. longa. Stigma subquingulare, margine inferiore rotundata. Pes gynostemii ovario adpressus, linearis, apice leviter canaliculatus, membrana adnata apice longitudinaliter oblongo-excisa glandulam includente, apice costis 3 superne divergentibus instructus, 1.45 cm. longus. Ovarium elongato-obconicum, apice oblique incurvulo, 6-sulcatum, sparse minutissime puncticulatum, c. 0.7 cm. longum; pedicellus tenuior, 1.8 cm. longus.

Dutch New-Guinea: Nassau-mountains west, 2500 and 2600 m., epiphytial in moss-grown forest. (W. M. DOCTERS VAN LEEUWEN nrs. 10839 and 10898; October 1926; "flowers brick-red").

This differs from *D. deflexum* Ridl. in the much longer mentum, the not ovate petals, the lip being lacinulate only at the top margin, the quite differently shaped column, and from *D. sacculiferum* J. J. S. in the larger, more numerous flowers, the hardly broadened margins of the column.

Description from herbarium and flowers preserved in alcohol.

Sect. *Distichophyllum*.

Dendrobium cadetiiflorum J. J. S. n. sp.

Tab. XI, 34.

Caules elongati, tenuiusculi, teretes, superne leviter flexuosi, inferne radicales, ad c. 75 cm. longi, inferne 0.2—0.25 cm. diam., internodiis c. 2.8—1.7 cm. longis. Folia linearia, apicem versus leviter angustata, inaequaliter obtuse triangulo-bilobula, costa media supra sulcata subtus prominente, novella pilis malpighiaceis nigrescentibus sparse vestita, mox subglabrata,

dorso dense punctata, tenuiter coriacea, rigida, medio fere impressione apicis folii inferioris notata, c. 3.5—5.5 cm. longa, sicco 0.34—0.5 cm. lata; vaginae tubulosae, internodia subaequant, apice truncatae, atrofusce pilosae. Inflorescentiae e nodis, vaginam dorso ad basin perforantes, brevissimae, ut videtur 1-florae. Flos c. 1.15 cm. latus, 1 cm. longus, sepalis petalisque in semicirculo patentissimis, basi patentibus, supra basin recurvis, apice recurvis, convexis. Sepalum dorsale oblongum, apice angustatum, obtusum, dorso ad apicem breviter conico-apiculatum, 3-nervium, tenuiusculum, c. 0.7 cm. longum, fere 0.3 cm. latum. Sepala lateralium cum pede gynostemii mentum breve reversum ovario adpressum rectum calcariforme conicum a latere visum semiovale obtusum c. 0.2 cm. longum formantia, oblique oblonga, apice acutata, obtuse conduplicato-apiculata, 3-nervia, tenuiuscula, c. 0.7 cm., margine antico (partis liberae) 0.85 cm. longa, 0.28 cm. lata, basi 0.325 cm. metientia. Petala oblique sublinearia, apicem versus vix dilatata, acutiuscula, 1-nervia, fere 0.7 cm. longa, vix 0.12 cm. lata. Labellum basi pedi gynostemii breviter adnatum, ceterum gynostemio adpressum et multo longius, leviter recurvulum, 3-lobum, concavum, carnosum, subtus longitudinaliter sulcatum, 5-nervium, costis 2 longitudinalibus inconspicuis convexis canalicula separatis inter lobos laterales, expansum ambitu spathulatum, totum c. 1 cm., parte libera 0.75 cm. longum; lobi laterales parvi, erecti, subincurvuli, extus convexi, trianguli, obtusi, postice sensim angustati, hypochylium cuneatum c. 0.44 cm. latum formantes; lobus intermedius porrectus, multo major, crasse carnosus, ex ungue brevissimo c. 0.05 cm. longo 0.3 cm. lato transverse ovalis, apice late retusus, rotundato-bilobulus, cum lobulo paulo brevior rotundato in sinu, medio concavus, margine convexo-incrassatus, inconspicue crenulatus, vix rugulosus, c. 0.5 cm. longus, 0.65 cm. latus. Gynostemium breve, rectum, supra visum quadrangulum, absque anthera 0.2 cm. longum, filamentum parvo subulato, auriculis longioribus, triangulis, obtusis, minutissime apiculatis, concavis, extus convexis, leviter irregulariter marginatis. Anthera cucullata, ambitu quadrangula, apicem versus paululum angustata, apice breviter rotundato-producto incurvula papillosaque, dorso rotundato-bilobula, bene 0.1 cm. lata. Pollinia 4, linearia, in corpuscula 2 oblonga unita. Rostellum porrectum, crassum, quadrangulum, rotundatum. Stigma magnum, longitudinale, ovale. Pes gynostemii reversus, ovario adpressus, brevis, saccatus, obtusus, basi utrinque breviter rotundato-dilatatus, 0.2 cm. longus. Ovarium 6-sulcatum, pedem gynostemii paululum superans, c. 0.3 cm. longum; pedicellus brevissimus, c. 0.1 cm. longus.

Dutch New-Guinea: Rouffaer-river, confluent C, 150 m., thinstemmed forest, numerous on the spot, very few in flower, terrestrial. (W. M. DOCTERS VAN LEEUWEN n. 10261, September 1926; "flowers very light yellow").

Much in the way of *D. melanotrichum* Schltr. but with longer, narrower, at least at first hairy leaves, a much shorter mentum, narrow acute petals, two not very distinct ribs between the lateral lobes and a much shorter ovary. From *D. paludicola* Schltr. it may be distinguished by the larger, at first hairy leaves, hairy sheaths, a much shorter mentum, triangular side lobes, a transverse oval retuse midlobe, very short column foot and shorter ovary. Moreover the colour is different.

The structure of the flowers of the section *Distichophyllum* is very similar to that of the section *Cadetia*. Loose flowers of the species described here might, indeed, easily be kept for a member of the latter section.

Description from herbarium and a single flower preserved in alcohol.

Dendrobium pluricostatum Schltr. Orch. D. N. Guinea (1912), 557.

Dutch New-Guinea: Rouffaer-river, confluent C, 250 m., riverbank, epiphytical in primeval forest. (W. M. DOCTERS VAN LEEUWEN n. 10231, September 1926; "flowers yellow").

Pseuderia Schltr.**Pseuderia sympodialis** J. J. S. n. sp.

Tab. XI, 35.

Caules elongati, ramosi, tenuiusculi, teretes, partes adsunt ad 50 cm. longi, ramulis patentibus vel subpatentissimis, internodiis c. 1.25—1.5 cm. longis, superioribus minoribus. Folia patentia, ovato-lanceolata, sensim longe acuminata, acuta, basi cuneata marginibus recurvulis, costa media dorso prominente, ceteris nervis minus prominentibus, rigide coriacea, nigrescentia, c. 3—5.5 cm. longa, 0.9—1.5 cm. lata, inferiora minora; vaginae tubulosae, internodia aequantes vel paululum superantes, sicco prominenter nervosae. Inflorescentiae axillares, vaginam dorso ad basin perforantes vel in ramulis brevibus ad 3 cm. longis aphyllis interdum radicem emittentibus, brevissimae, sympodialiter ramosae, ramulis ad c. 5, ut videtur plerumque 1-floris, vaginulis brevibus tubulosis rachide ovario tenuiore, totae c. 1—1.2 cm. longae. Bractee rachidem amplectentes, reflexae, supra basin abrupte angulato-incurvae, concavae, 5- vel potius 7-angulares, leviter acuminatae, 3-nerviae, c. 0.4 cm. longae, 0.3 cm. latae. Flores c. 1.1 cm. longi, sepalis petalisque conniventibus, parallelis, carnosulis. Sepalum dorsale cum ovario angulum obtusum faciens, incurvum, concavum, sublineare, obtusum, supra basin vix constrictum, 5-nervium, c. 1.5 cm. longum, 0.375 cm., fere 0.4 cm. latum. Sepala lateralibus ad pedem gynostemii decurrentia, mentum brevissimum obtusum retusum formantia, oblique lineari-oblonga, falcata, obtusa, leviter concava, 5-nervia, costa media dorso leviter incrassata ad apicem valde gibboso-incrassata, c. 1.13 cm. longa, medio 0.37 cm. lata. Petala parallela, gynostemium includentia, linearia, falcata, obtusa, apicem versus minute ciliolata, apice intus papillosa, concava, 3-nervia, bene 1.1 cm. longa, 0.24 cm. lata. Labellum mobile, valde recurvum, late canaliculatum, simplex, 3-nervium, fascia longitudinali lineari convexa e basi usque infra apicem, nervis lateralibus basi breviter incrassatis, apice et secundum margines basi excepta puberulum ad papillosum, inexplanatum c. 0.625 cm. longum, explanatum anguste oblongum, breviter late obtusangule angustatum, basi angustata truncatum, c. 1 cm. longum, medio fere 0.4 cm. latum. Gynostemium gracile, curvatum, subteres, dorso convexum, subtus leviter convexo-applanatum et infra stigma canalicula brevi longitudinali instructum, superne marginibus angustis subprominentibus, c. 0.94 cm. longum, clinandrio infra apicem contracto, satis alto, ovato, margine omnino denticulato. Rostellum porrectum, transverse subquadrangulum. Stigma transverse quadrangulum. Pes gynostemii brevis, cum ovario gynostemioque angulos obtusos faciens, rectus, gynostemio latior, sexangulatus, apice truncatus, medio leviter concavus, dorso c. 0.15 cm., intus 0.2 cm. longus. Ovarium 6-sulcatum, c. 0.475 cm. longum.

Dutch New-Guinea: Rouffaer-river, confluent C, 250 m., edge of primeval forest, epiphytical, dependent. (W. M. DOCTERS VAN LEEUWEN n. 10419, September 1926; "flowers outside green, inside red-brown").

In habit much resembling *P. brevifolia* J. J. S. but differing in the ramified more-flowered inflorescences, the oblong, not elliptic lip with the broad convex rib almost attaining the top,

the towards the apex ciliolate and papillose petals, a shorter ovary, whereas also the colour of the flowers differs.

Description from herbarium and flowers preserved in alcohol.

Bulbophyllum Thou.

Sect. *Coelochilus*.

Bulbophyllum inclinatum J. J. S. n. sp.

Tab. XII, 36.

Pusillum. Rhizoma repens, radicans. Pseudobulbi parvi, rhizomati adnati, moniliformes, oblique depressi, suborbiculares ad subovales, carnosii, c. 0.25—0.55 cm. longi, 0.4—0.44 cm. lati, 1-folii. Folium sessile, substrato adpressum, ovatum, obtusum cum apiculo parvo conico acuto plus minusve recurvo, basi rotundatum, supra in utraque partē costae mediae canaliculatae convexum, subtus concavum cum costa media obtusangule prominente, supra ruguloso-verrucosum, carnosum, c. 0.7—1.1 cm. longum, 0.4—0.63 cm. latum. Inflorescentiae e rhizomate, breves, 1-florae, pedunculo c. 0.225 cm. longo, nonnullis vaginulis brevibus tubulosis donato. Bractea oblique infundibuliformis, apice oblique truncata, acuta, 0.1 cm. longa. Flos parvus, inclinatus, c. 0.5 cm. longus, sepalis conniventibus (bene expansis?). Sepalum dorsale incurvum, concavum, sublineare, obtusum, acute apiculatum, 3-nerviū, bene 0.6 cm. longum, 0.125 cm. latum. Sepala lateralia concava, superne conduplicata, oblique cymbiformia, oblique ovata, apicem versus angustata, breviter conduplicato-accuminata, acuta, 3-nervia, c. 0.53 cm. longa, 0.26 cm. lata. Petala parva, leviter falcato-subulata, acuta, margine antico basi in lobulum triangulum obtusum dilatata, 1-nervia, c. 0.27 cm. longa, basi ad lobulum 0.07 cm. lata. Labellum immobile, cum ovario angulum acutum faciens, leviter sigmoideum, parte inferiore valde concavum subtus convexum, parte antica leviter convexum, fascia lata longitudinali humili medio concava oblonga tenuiter transverse rugulosa in $\frac{2}{3}$ supra basin dilatata et apicem omnino occupante, simplex, oblongum, apice rotundatum, basi truncatum, inexpandum bene 0.4 cm. longum, 0.2 cm. latum. Gynostemium gracile, supra basin valde incurvum, utroque latere longitudinaliter angulatum, dorso versus apicem costula longitudinali instructum, bene 0.3 cm. longum, clinandrio concavo, auriculis porrectis, oblique quadrangulis, in dentem triangulum falcule sursum curvum acutum erosulum productis, margine inferiore in lobulum obtuse triangulum dilatatis, erosulis, pede abbreviato, calliformi. Anthera cucullata, lateraliter compressa, leviter cordato-ovata, in rostrum triangulum obtusiusculum supra convexum producta, connectivo longitudinaliter incrassato alto angusto, fere 0.1 cm. longa. Stigma longitudinale, lineare, fissiforme, basin versus angustatum acutumque. Ovarium curvatum, teres, 6-sulcatum, 0.2 cm. longum; pedicellus paulo tenuior, 0.17 cm. longus.

Dutch New-Guinea: Rouffaer-river, confluent C, 250 m., epiphytical in primeval forest. (W. M. DOCTERS VAN LEEUWEN n. 10394, September 1926; "flowers red, with lighter longitudinal stripes).

In habit this species is similar to *B. alkmaarense* J. J. S.; *B. frustans* J. J. S. etc. but well characterized by the flowers.

Description from herbarium and material preserved in alcohol.

Bulbophyllum aristilabre J. J. S. in Fedde Rep. XI (1912), 278; in Nova Guinea XII (1916), 364, t. CXXXII, 244.

Dutch New-Guinea: Rouffaer-river, 175 m., epiphytical in primeval forest. (W. M. DOCTERS VAN LEEUWEN, August 1926, n. 9968, "flowers white with red stripes, lip yellow", n. 10146, "flowers red and yellow").

Sect. *Ephippium*.

Bulbophyllum nasica Schltr. Orch. D. N. Guinea (1913), 777. — *B. Blumei* J. J. S. var. *pumilum* J. J. S. in Nova Guinea VIII (1909), 90, t. XXX, 97.

Dutch New-Guinea: Mamberamo, Albatros-bivouac, 100 and 150 m., hill ridge, epiphytical in thin forest, rather common. (W. M. DOCTERS VAN LEEUWEN n. 9011, 7 May 1926, "flowers dark red", n. 9460, July 1926, "flowers red") .Rouffaer-river, confluent C, 250 m., epiphytical in primeval forest. (W. M. DOCTERS VAN LEEUWEN nrs. 10216, 10317, 10318, 10407, September 1926).

I think that all these specimens belong here.

Sect. *Nematorhizis*.

Bulbophyllum trinervium J. J. S. n. sp.

Tab. XII, 37.

Rhizoma elongatum, repens, ramosum, filiforme, ad pseudobulbos tantum radicans, internodiis elongatis, vaginis tubulosis internodiis multo brevioribus. Pseudobulbi c. 0.6—1.9 cm. dissiti, parvi, cum rhizomate angulos acutos facientes, curvuli, oblique ovoidei, sexangulares cum lateribus cavis, obtusi, c. 0.225—0.25 cm. longi, 0.2 cm. diam., 1-folii. Folium recurvum, parvum, ellipticum vel plus minusve ovatum, obtusum, mucronatum, praesertim versus apicem celluloso-ciliolatum, basi brevissime contractum, convexum cum sulco longitudinali, 3-nervium (in foliis majoribus nervis 2 secundariis tenuibus additis), c. 0.45—0.65 cm. longum, 0.2—0.25 cm. latum. Inflorescentiae solitariae, folium superantes, 1-florae, pedunculo tenui, c. 0.65 cm. longo, nonnullis vaginulis tubulosis ad basin. Bractea infundibuliformi-tubulosa, truncata, apiculo subulato imposito, 0.14 cm. longa. Flos c. 0.5 cm. longus, sepalis conniventibus (an semper?). Sepalum dorsale oblongum, sensim longe subulato-acuminatum, concavum, 3-nervium, nervis dorso prominentibus, c. 0.475 cm. longum, 0.16 cm. latum. Sepala lateralia porrecta, parallela, oblique triangula, subulato-acuminata, acuta, falcata, leviter concava, 3-nervia, nervis dorso prominulis, c. 0.5 cm., margine antico 0.35 cm. longa, basi 0.2 cm. metientia. Petala porrecta, verticalia, e basi oblique oblonga sensim longe subulato-acuminata, 1-nervia, bene 0.3 cm. longa, 0.075 cm. lata. Labellum mobile, erectum, in $\frac{2}{5}$ partibus supra basin recurvum, apice recurvum, $\frac{3}{5}$ partibus inferioribus lateribus erecto-patentibus convexis canaliculatum, apice convexum, leviter 3-lobum, 3-nervium, tenue, glabrum, ecallosum, expansum e basi brevissime contracta ovatum, lobis lateralibus humilibus rotundatis, lobo intermedio multo majore, convexo, triangulo, acuto, totum c. 0.2 cm. longum, 0.125 cm. latum, lobo intermedio 0.12 cm. longo, 0.08 cm. lato. Gynostemium breve, infra medium constrictum, dorso convexum, c. 0.1 cm. longum, clinandrio alte excavato, oblique truncato, auriculis oblique quadrangulis, truncatis. Anthera cucullata, valde lateraliter compressa, connectivo incrassato, apice in rostrum subulatum productum, c. 0.05 cm. longa. Pes gynostemii cum ovario angulum obtusum faciens, rectus, linearis, truncatus, 0.175 cm. longus. Ovarium breve, obconicum, 6-costatum, 0.07 cm. longum; pedicellus tenuis, 0.45 cm. longus, 0.1 cm. supra basin articulatus.

Dutch New-Guinea: Rouffaer-river, confluent C, 250 m., thinstemmed forest, epiphytical, in moss. (W. M. DOCTERS VAN LEEUWEN n. 10325, September 1926; "flowers white with red").

Near *B. flavicolor* J. J. S. but i. a. with a much longer pedicel, differently coloured flowers, broader sepals, a somewhat three-lobed lip, a longer column-foot.

Description from herbarium and a flower preserved in alcohol.

Sect. *Schistopetalum*.

Bulbophyllum trigonidioides J. J. S. n. sp.

Tab. XII, 38.

Rhizoma repens, radicibus tenuibus. Pseudobulbi c. 0.4—0.9 cm. dissiti, cum rhizomate angulum acutum facientes, oblique ovoidei, sicco quadranguli, c. 0.3—0.6 cm. longi, 1-folii, initio vaginis tubulosis inclusi. Folium obovatum ad oblongo-obovatum, apice saepe subcontractum, obtusum vel obtusissimum, interdum minute apiculatum, basin versus cuneato-angustatum conduplicatumque, margine revolutum, costa media supra sulcata subtus prominente, c. 2.7—7.5 cm. longum, 1.3—2.85 cm. latum. Inflorescentiae 1-florae, pedunculo tereti, parte adest 0.55 cm. longo. Bractea oblique infundibuliformis, triangulo-acuminata, acuta, carinata, 0.37 cm. longa. Flos c. 2.1 cm. longus, 0.85 cm. latus. Sepalum dorsale erectum, apice recurvum, concavum, ovatum, abrupte in caudam filiformem canaliculatam productum, 7-nervium, carnosum, totum c. 1.4 cm. longum, bene 0.6 cm. latum, cauda 0.55 cm. longa. Sepala lateralia basi sepalo dorsali breviter adnata, marginibus posticis marginem sepali dorsalis basi obtegentia, supra basin deflexa, convexa, margine antico anguste incurva, oblique ovato-triangulari, abrupte in caudam filiformi-subulatam canaliculatam contracta, 7-nervia, carnosa, tota c. 1.45 cm. longa; 0.5 cm. lata, cauda 0.6 cm. longa. Petala parva, porrecta, verticalia, in utraque parte canaliculae longitudinalis convexa, obverse semiorbiculari-reniformia, basi rotundata, lobulis brevissimis obtuse dentiformibus, appendicibus 3 filiformibus apicalibus 0.16 cm. longis inter lobulos, 1-nervia, tota 0.25 cm. longa, parte basali 0.1 cm. longa, 0.16 cm. lata. Labellum apici pedis gynostemii elastice affixum, carnosum, supra visum ambitu subellipticum, in $\frac{2}{5}$ partibus totius longitudinis insertum (vel potius in $\frac{1}{3}$ totius longitudinis abrupte recurvum), auriculis 2 conspicuis reversis verticalibus rotundatis postice intus convexo-carnoso-incrassatis margine exteriori incurvulis antice in basin laminae productis et appendicem antice angustatam et in dentes 2 verticales triangulos supra visos acutos exeuntem costulis 2 longitudinalibus parallelis in dentes excurrentibus munitam formantibus glabris ad basin, lamina porrecta, quam partem inferiorem latiore, ovata, obtusa, apice vix sursum curvula, convexa, subtus convexa cum canalicula longitudinali, omnino villosula, subtus supra loculum insertionis valde transverse carnosio-incrassatum cum sulco longitudinali, totum 0.45 cm. longum, lamina c. 0.3 cm. longa, 0.24 cm. lata. Gynostemium breve, crassum, recurvum, subtus concavum, totum 0.275 cm. longum, clinandrio excavato, auriculis porrectis, latis, retusis, lobulo postico in appendicem longissimam subulato-foliformem porrectam valde falcato-decurvam antheram superantem producto, lobulo antico triangulo obtuso. Anthera cucullata, e basi suborbiculari postice bilobula in appendicem magnam paulo angustiore quadrangulam apice leviter rotundatam irregulariterque marginatam convexam cum parte inferiore angulum obtusum facientem producta, connectivo convexo-incrassato, 0.13 cm. longa, 0.08 cm. lata. Rostellum transversum, truncatum. Stigma parvum, longitudinale, quadrangulum.

Pes gynostemii cum ovario angulum acutum faciens, totum inexpandum 0.3 cm. longum, parte inferiore sepalis lateralibus adnata crassa infra stigma crasse convexo-gibbosa c. 0.13 cm. longa, parte antica rotundato-rectangule incurva libera porrecta recta superne in lamellam tenuem aequilatam producta c. 0.2 cm. longa. Ovarium obconicum, 6-sulcatum, 0.3 cm. longum; pedicellus teres, c. 1 cm. longus, 0.32 cm. supra basin articulatus.

Dutch New-Guinea: Mamberamo, Albatros-bivouac, 60 m., epiphital in primeval forest. (W. M. DOCTERS VAN LEEUWEN n. 9040, May 1926; "flowers orange, dotted red-brown"). Opposite Albatros-bivouac, 60 m., epiphytial in primeval forest on hill ridge. (W. M. DOCTERS VAN LEEUWEN n. 9552 (type), July 1926; "flowers orange with red markings, undersurface of leaf sometimes violet").

In the small section *Schistopetalum* this it at once characterized by the obovate leaves and the petals provided with 3 threadlike appendages.

Description from herbarium and flowers preserved in alcohol.

Sect. Papulipetalum.

Bulbophyllum brevilabium Schltr. Orch. D. Neu-Guinea (1913), 772; Fig. Atl. t. CCLVII, Nr. 982.

Dutch New-Guinea: Nassau-mountains, Exploration-bivouac, 700 m., epiphytial in primeval forest. (W. M. DOCTERS VAN LEEUWEN n. 10657, October 1926; "flowers light yellowish brown dotted red, lip spotted violet"). Same locality, 1500 m., epiphytial in primeval forest. (W. M. DOCTERS VAN LEEUWEN n. 10975, October 1926; "flowers yellow, lip with violet").

The specimens at hand differ from SCHLECHTER's description of the species especially in the dorsal sepal being thickened in the upper portion inside and the clinandrium showing a tooth on both sides at the base of the arms. Dr. R. MANSFELD kindly examined the type specimen and informed me that the teeth are present, and that the dorsal sepal seemed to have been somewhat thickened though it was not possible to get certainty in this respect.

Bulbophyllum ellipticifolium J. J. S. n. sp.

Tab. XII, 39.

Rhizoma elongatum, dependens vel patens, ramosum, basi tantum radicans, c. 32 cm. longum, internodiis c. 0.6—1.8 cm. longis, vaginis tubulosis mox fatiscentibus, radicibus crassiusculis. Pseudobulbi c. 1.5—5 cm. dissiti, quaquaversi, cum rhizomate angulum acutum facientes, sicco crassitudine rhizomatis, subteretes, c. 2.3—2.8 cm. longi, 1-folii. Folium ellipticum ad oblongo-ellipticum, obtusum, breviter obtuse apiculatum, basi in petiolum brevem contractum, costa media dorso prominente, pluribus nervis tenuioribus curvatis sicco supra subtusque prominentibus, sicco coriaceum, totum c. 5.75—9.25 cm. longum, 1.8—3.8 cm. latum, petiolo canaliculato, c. 0.3—0.5 cm. longo. Inflorescentiae in nodis rhizomatis fasciculatae, 1-florae, pedunculo c. 1.3 cm. longo, nonnullis vaginulis tubulosis ad basin. Bractea tubulosa, c. 0.33 cm. longa. Flos in sectione magnus, c. 2 cm. longus. Sepalum dorsale ovato-lanceolatum, apicem versus sensim angustatum, acutum, concavum, 5-nervium, carnosulum, c. 1.95 cm. longum, 0.6 cm. latum. Sepala lateralibus oblique oblonga, falcata, breviter acuta, leviter concava, margine antico anguste incurva, c. 6-nervia, carnosula, c. 2.1 cm. longa, fere 0.7 cm. lata, basi paulo angustiora. Petala parva, porrecta, verticalia, gynostemio adpressa, subquingulari-oblonga, dimidio superiore versus apicem angustata, obtusa, margine superne et apice intus papillosa,

nervo i dorso leviter ad apicem bene incrassato, bene 0.3 cm. longa, 0.2 cm. lata. Labellum minutum, mobile, gynostemium superans, recurvulum, simplex, carnosum, glabrum, ambitu ovatum, $\frac{2}{5}$ partibus superioribus sensim contractum subteresque, obtusum, basi truncatum, parte inferiore marginibus patenti-erectis intus convexis extus concavis late canaliculatum, subtus longitudinaliter sulcatum, c. 0.35 cm. longum, fere 0.2 cm. latum. Gynostemium rectum, tenuiusculum, dorso convexum, subtus concavum, c. 0.35 cm. longum, clinandrio excavato, pariete postico breviter lateque producto obtuse bilobulo, auriculis oblique quadrangulis in subulam rectam longiusculam productis antheram subaequantibus. Anthera cucullata, lateraliter compressa, obtusa, connectivo longitudinali valde convexo-incrassato, 0.14 cm. longa. Stigma in basi gynostemii situm, parvum, longitudinale, oblongum. Pes gynostemii cum ovario angulum obtusum faciens, incurvus, oblongo-linearis, truncatus, apice a sepalis lateralibus liber, incrassatione longitudinali oblongo-quadrangula excavationem longitudinalem cingente a stigmate decurrente ad basin, 0.275 cm. longus. Ovarium teres, 6-sulcatum, 0.4 cm. longum; pedicellus elongatus, 4.4 cm. longus, 0.25 cm. supra basin articulatus.

Dutch New-Guinea: Rouffaer-river, 175 m., hills, epiphytical on a high tree, primeval forest. (W. M. DOCTERS VAN LEEUWEN n. 10147, August 1926; "flowers yolk-yellow").

The species is characterized by the elongate rhizome, elliptic blunt short-petioled leaf and large yolk-yellow flowers.

Description from herbarium and flowers preserved in alcohol.

Sect. *Epibulbon*.

Bulbophyllum perforans J. J. S. n. sp.

Tab XIII, 40.

Rhizoma elongatum, dependens, ramosum, fasciculare, flexuosum, c. 47 cm. longum, praesertim basi dense radicans, ceterum hic illic radicem emittens, radicibus tenuibus tortilibus. Pseudobulbi partibus rhizomatis c. 0.45—1 cm. longis separati, fere tota longitudine rhizomate perforati, apice tantum liberi, teretes, apice vix incrassati, c. 1.2—2.4 cm. longi, 0.25—0.35 cm. diam., apice libero rhizomati adpresso, subtus excavato, 0.2—0.4 cm. longo. Folium lineare, obtuse acutatum, breviter obtuse apiculatum, basi sensim angustatum conduplicatumque, costa media dorso prominente, sicco tenuiter coriaceum, c. 3.8—6.5 cm. longum, 0.425—0.6 cm. latum. Inflorescentiae e nodis rhizomatis, fasciculatae, breves, 1-florae, pedunculo c. 0.6 cm. longo, nonnullis vaginulis tubulosis ad basin. Flos c. 2.1 cm. longus, sepalis subparallelis. Sepalum dorsale e basi ovato-lanceolata leviter concava longe filiformi-productum, 3-nervium, c. 1.9 cm. longum, parte dilatata c. 0.8 cm. longa, 0.27 cm. lata. Sepala lateralia e basi oblique lanceolato-triangula leviter concava longe filiformi-producta, margine antico inferne papillosa, 3-nervia, 2.3 cm. longa, parte dilatata c. 0.93 cm. longa, 0.25 cm. lata. Petala parva, correcta, verticalia, gynostemio adpressa, oblique subspathulato-oblonga, apice angustata, obtusa, glabra, 1-nervia, c. 0.24 cm. longa, superne 0.12 cm. lata. Labellum membrana brevissima angusta insertum, mobile, parvum, vix curvulum, simplex, carnosulum, parte inferiore marginibus incurvulis concava subtus convexa, parte antica convexa subtus leviter concava, glabrum, 3-nervium, ambitu obovato-oblongum, apice leviter subtriangulo-contractum rotundatum, basi rotundatum, c. 0.3 cm. longum, 0.15 cm. latum. Gynostemium brevissimum, dorso convexum, c. 0.08 cm.

longum, clinandrio concavo, auriculis longiusculis porrectis, antheram paululum superantibus, subulatis, falcatae sursum curvulis. Anthera cucullata, suborbicularis, apice breviter rotundato-producta, connectivo convexo, c. 0.05 cm. lata. Stigma alte excavatum, suborbiculare. Pes gynostemii cum ovario angulum obtusum faciens, brevis, rectus, crassus, oblongo-quadrangulus, rotundato-truncatus, intus ad basin leviter incrassatus, fere 0.1 cm. longus. Ovarium 6-sulcatum, 0.275 cm. longum; pedicellus 0.4 cm. longus.

Dutch New-Guinea: Nassau-mountains, Exploration-bivouac, 1200 m., epiphytically in primeval forest. (W. M. DOCTERS VAN LEEUWEN n. 10776, October 1926; "flowers light yellow").

With regard to the habit this plant belongs to SCHLECHTER's section *Epibulbon*; the flowers are, however, rather large for that group.

Description from herbarium and material preserved in alcohol.

Sect. Fruticicola.

Bulbophyllum rugulosum J. J. S. n. sp.

Tab. XIII, 41.

Rhizoma repens, vaginis majusculis mox fatiscentibus fibras relinquentibus ad c. 1.5 cm. longis, radicibus numerosis tenuibus. Pseudobulbi approximati, seriatim, adscendentes, sicco valde subquingulati cum lateribus excavatis, c. 1.3—1.4 cm. longi, 1-folii. Folium lanceolato-lineare, saepe plus minusve falcatum, apicem versus angustatum, acutum, marginibus basi in sicco revolutis, costa media dorso prominente, papyraceum ad tenuiter coriaceum, c. 8.5—15.5 cm. longum, 0.7—1.1 cm. latum. Inflorescentiae e rhizomate, fasciculatae, 1-florae, pedunculo tenui, c. 0.65 cm. longo. Bractea anguste tubuloso-infundibuliformis, carinata, lateraliter compresso-apiculata, 0.375 cm. longa. Flos bene 1 cm. latus, 1.3 cm. longus, sepalis patentissimis. Sepalum dorsale erectum, concavum, apice recurvulum, oblongum, basi leviter contractum, apicem versus angustatum, obtusiusculum, breviter lateraliter compresso-apiculatum, 3-nervium, nervis dorso prominulis, c. 0.775 cm. longum, 0.27 cm. latum. Sepala lateralia divaricata, falcato-decurva, oblique oblonga, apiculato-acuminata, convexa, margine antico angustissime incurva, apice canaliculata, 3-nervia, nervis dorso subprominulis, c. 0.85 cm. longa, fere 0.3 cm. lata. Petala parva, porrecta, parallela, verticalia, oblique oblonga, apicem versus paululum dilatata, rotundata ad obtusissima, minute erosula, 1-nervia, fere 0.3 cm. longa, bene 0.1 cm. lata. Labellum mobile, vix recurvulum, carnosum, ligulatum, subtrilobum, subtus longitudinaliter canaliculatum, supra visum oblongo-lineare, basi lobis lateralibus erectis canaliculatum, canalicula costis 2 longitudinalibus dorso contiguis oblecta, subtus et in lateribus basi apiceque exceptis dense patentissime breviuscule papilloso-pilosum, c. 0.45 cm. longum, 0.125 cm. latum, lobis lateralibus erectis rotundatis margine praesertim antice papilloso, lobo intermedio porrecto, lineari-oblongo, obtuso, apice convexo excepto subplano transverseque ruguloso, c. 0.28 cm. longo. Gynostemium c. 0.25 cm. longum, auriculis elongatis, porrectis, subulatis, falcatis, antheram longe superantibus, apice clinandrii triangulo supra convexo. Anthera cucullata, ambitu triangulo-orbicularis, basi lata retusa, marginibus minutissime serrulatis, connectivo valde gibboso-incrassato, ultra apicem producto rotundato-truncato verruculoso-papilloso, c. 0.07 cm. lata. Pollinia 4, a latere compressa, 2 exteriora subsemiorbicularia, extus convexa, 2 interiora multo minora. Stigma longitudinale, oblongum, basin gynostemii attingens. Pes gyno-

stemii cum ovario angulum subrectum faciens, incurvulus; crassus, oblongus, apice leviter dilatatus, truncatus, concavus, bene 0.125 cm. longus. Ovarium .6-sulcatum, fere 0.2 cm. longum; pedicellus tenuis, teres, c. 1.45 cm. longus, 0.32 cm. supra basin articulatus.

Dutch New-Guinea: Nassau-mountains west, 1200 m., epiphytical in primeval forest. (W. M. DOCTERS VAN LEEUWEN n. 11014, October 1926; "flowers green, dotted violet").

In the shape of the flowers this rather closely resembles *B. dependens* Schltr. It is, however, a different plant with angular pseudobulbs, larger, differently coloured flowers.

Description from herbarium and flowers preserved in alcohol.

Sect. Rhizocaulon.

Bulbophyllum bambusifolium J. J. S. n. sp.

Tab. XIII, 42.

Rhizoma elongatum, dependens, dichotome ramosum, laxe serpentinum, tenue, teres, c. 80 cm. longum, fere 0.1 cm. diam., praesertim basi radicans, ceterum hic illic radicem interdum partim rhizomati adpressam emittens, radicibus tenuibus, vaginis tubulosis acutis carinatis sicco prominenter nervosis se partim amplexentibus initio tectum. Pseudobulbi c. 2.25—4.75 cm. dissiti, rhizoma continui, oblique oblongi, compressi, truncati, sicco c. 1.3—1.5 cm. longi, 0.35—0.45 cm. lati, 1-folii. Folium ovato-lanceolatum, versus apicem angustatum, acutum vel apiculato-acutum, basi brevissime contractum, costa media dorso prominente, sicco papyraceum, c. 3.7—6 cm. longum, 1—1.6 cm. latum. Inflorescentiae in rhizomatis ramulis brevibus fasciculatae, numerosae, pedunculis 1-floris, tenuibus, filiformibus, c. 0.5—0.6 cm. longis, basi vaginulis distichis imbricatis acutis carinatis tectis. Bractea oblique infundibuliformis; acuminata, acuta, dorso apicem versus carinata, fere 0.2 cm. longa. Flos c. 1 cm. latus. Sepalum dorsale recurvum, basi convexum, ceterum concavum, lanceolatum, apicem versus angustatum, acutum, parce longe tenuiter ciliatum, 3-nervium, c. 0.57 cm. longum, 0.175 cm. latum, ciliis ad fere 0.1 cm. longis. Sepala lateralia recurvula, supra basin convexam incurvula concavaque, patentissima, oblique ovato-oblonga, brevissime acute acuminata, vix falcata, eciliata, 3-nervia, c. 0.6 cm. longa, 0.225 cm. lata. Petala parva, porrecta, gynostemio adpressa, apice recurvula, convexa, elliptica, acuta, parcius longe ciliata, 1-nervia, c. 0.12 cm. longa, 0.05 cm. lata, ciliis ad 0.08 cm. longis. Labellum lamella parva brevi insertum, mobile, carnosum, lineare, sigmoidum, obtusum, 3-nervium, subtus tota longitudine supra $\frac{2}{5}$ partibus superioribus lanato-pilosum, basi auriculis 2 minutis reversis obtusis instructum, supra basin constrictum et lobulis 2 parvis erectis obtusis intus convexis extus concavis costula transversa conjunctis donatum, parte inferiore subtus convexa intus plana cum costulis 2 longitudinalibus convexis superne evanescentibus, parte antica supra convexa cum incrassatione longitudinali convexo ad basin, totum c. 0.425 cm. longum, inferne fere 0.1 cm., cum indumento 0.14 cm., cum pilis expansis 0.2 cm. vel plus latum. Gynostemium subrectum, dorso convexum, 0.15 cm. longum, clinandrio concavo, pariete postico obtuse triangulo-producto, auriculis sinu rotundato-rectangulo ab apice gynostemii sejunctis, divergentibus, oblique quadrangulis, oblique truncatis cum apiculo minimo tenuiter subulato imposito. Anthera cucullata, ambitu cordato-suborbicularis, apice in rostrum breve rotundatum producta, connectivo lateraliter compresso-costiformi-incrassato, c. 0.05 cm. lata. Stigma parvum, alte excavatum, suborbiculare. Pes gynostemii cum ovario angulum obtusum

faciens, brevis, quadratus, truncatus, antice convexus, 0.06 cm. longus. Ovarium teres, 6-sulcatum, 0.1 cm. longum; pedicellus tenuis, teres, c. 0.6 cm. longus, c. 0.1 cm. supra basin articulatus.

Dutch New-Guinea: Mamberamo, Albatros-bivouac, 150 m., summit of hill, epiphytocal in primeval forest, dependent, (W. M. DOCTERS VAN LEEUWEN n. 9459, July 1926: "flower white, striped red").

This species is to be considered as a member of the section *Rhizocaulon*, but in the shape of the lip and more or less also in that of the column it shows much resemblance with *Polyblepharon*.

Description from herbarium and flowers preserved in alcohol.

Sect. *Oxysepalum*.

Bulbophyllum filicaule J. J. S. in Fedde Rep. XII (1913), 404; in Nova Guinea XII (1916), 395, t. CXLV, 273.

Dutch New-Guinea: Rouffaer-river, confluent C, 250, thinstemmed forest, epiphytocal, in moss. (W. M. DOCTERS VAN LEEUWEN n. 10326, September 1926).

The material was mixed with some specimens of *B. pseudofilicaule* J. J. S.

Bulbophyllum pseudofilicaule J. J. S. n. sp.

Tab. XIII, 43.

Planta parva. Rhizoma basi ramosum, ceterum raro ramulum emittens, basi tantum radicans, filiforme, ad c. 13 cm. longum, omnino vaginis tubulosis subulato-apiculatis prominenter nervosis obtectum. Pseudobulbi c. 0.5—1.1 cm. dissiti, parvi, magnam partem rhizomati adnati, subteretes, subtus applanati, basin versus attenuati, c. 0.15—0.2 cm. longi, 0.1 cm. diam., 1-folii. Folium patens, lanceolatum vel subovata-oblongum, plerumque brevissime acute acuminatum, basi brevissime petiolato-contractum, crasse carnosum, utrinque sparse punctatum, c. 1—1.5 cm. longum, 0.3—0.43 cm. latum. Inflorescentiae e nodis rhizomatis, numerosae, fasciculatae, 1-florae, breves, pedunculo c. 0.17 cm. longo, nonnullis vaginulis membranaceis donato. Bractea ovarium includens, sepalo dorsali adpressa, acuta, concava, membranacea, c. 0.16 cm. longa. Flos parvus, c. 0.38 cm. longus, sepalis conniventibus. Sepalum dorsale oblongum, obtusum, abrupte in filum longum productum, concavum, 3-nervium, c. 0.2 cm. longum, fere 0.1 cm. latum, filo 0.175 cm. longo. Sepala lateralibus vix mentum formantia, oblique oblongo-triangularia, acuta, in filum longum producta, concava, 3-nervia, bene 0.2 cm. longa, fere 0.1 cm. lata, filo 0.16 cm. longo. Petala minima, porrecta, oblique oblonga, apicem versus saepe inconspicue dilatata, subrotundata cum apiculo brevissimo obtuso vel acute triangulo, 1-nervia, c. 0.06 cm. longa, 0.03 cm. lata. Labellum membrana brevi angusta insertum, mobile, parvum, circiter in medio leviter obtusangule recurvulum, basi concavum, ceterum convexum, oblongum, obtusissimum, basi truncatum, glabrum, 3-nervium, 0.15 cm. longum, 0.07 cm. latum. Gynostemium breve, leviter a dorso compressum, 0.07 cm. longum, clinandrio concavo, apice triangulo cum filo parvo. Anthera cucullata, connectivo valde gibboso. Rostellum porrectum. Pes gynostemii cum ovario angulum obtusum faciens, crassus, rectus, truncatus, 0.05 cm. longus. Ovarium breve, obconicum, 0.05 cm. longum.

Dutch New-Guinea: Rouffaer-river, confluent C, 250 m., epiphytocal in primeval forest. (W. M. DOCTERS VAN LEEUWEN nrs. 10326a and 10388 (type), September 1926; "flowers yellow").

The species was mixed with specimens of *B. filicaule* J. J. S. and, indeed, they are deceptively similar, but the flowers distinguish them at once. With regard to the flowers the species closely resembles *B. piliferum* J. J. S., but the rhizome is much thinner, the leaves are smaller and flat, the flowers smaller and the sepals less acuminate.

Bulbophyllum piliferum J. J. S. in Bull. Dép. Agric. Ind. Néerl. XIX (1908), 8; in Nova Guinea VIII (1909), 98, t. XXXII, 107.

Dutch New-Guinea: Mamberamo, Albatros-bivouac, 150 m., summit of hill, epiphytical in primeval forest, dependent. (W. M. DOCTERS VAN LEEUWEN n. 9464, July 1926; "flowers greenish yellow, lip bright yellow"). Same locality, opposite Albatros-bivouac, 75 m., epiphytical in thin forest on hill ridge. (W. M. DOCTERS VAN LEEUWEN n. 9518, July 1926; "flowers light yellow").

Sect. *Peltopus*.

Bulbophyllum latipes J. J. S. n. sp.

Tab. XIV, 44.

Planta parva, dependens vel patula. Rhizoma ramosum, apicibus incurvis, ad c. 11 cm. longum, basi radicans, in parte superiore radicibus rhizomati adpressis, omnino vaginis majusculis membranaceis acutis sicco prominenter nervosis tectum. Pseudobulbi approximati, quaquaversi, adscendentes, curvati, sicco acute sexangulati, apicem versus attenuati, c. 0.75—1 cm. longi, 1-folii. Folium lanceolatum, obtusum, conspicue subulato-apiculatum, basi brevissime contractum, 7-nervium, sicco tenuiter papyraceum, rigidulum, c. 1.4—2 cm. longum, 0.3—0.5 cm. latum. Inflorescentiae e rhizomate, fasciculatae, 1-florae, pedunculo filiformi, c. 1.4 cm. longo, nonnullis vaginulis membranaceis ad basin. Bractea oblique anguste infundibuliformis, acuta, bene 0.15 cm. longa. Flos c. 0.5 cm. latus, 0.525 cm. longus. Sepalum dorsale reversum, cum ovario angulum acutum fere rectum faciens, supra basin valde incurvum, valde concavum, ovale, rotundatum, vix apiculatum, basi late truncatum, 3-nervium, tenue, c. 0.42 cm. longum, fere 0.25 cm. latum. Sepala lateralia porrecta, divergentia, angulum acutum facientia, oblique oblonga, obtusa, breviter apiculata, concava, carinata, 3-nervia, bene 0.4 cm. longa, bene 0.2 cm. lata. Petala parva, in utraque labelli parte porrecta, apice recurvula, convexa, rhombeo-elliptica, acuminata, acuta, 1-nervia, tenuia, c. 0.3 cm. longa, 0.15 cm. lata. Labellum mobile, 3-nervium, supra unguem transversum postice valde excavatum utrinque leviter rotundatum constrictum et in laminam subsexangularem orbicularem apice obtusangulam convexam subtus longitudinaliter late canaliculatum, excavatione basilari antice incrassatione transversa late V-formi limitata, costis 2 longitudinalibus parallelis erectis ab ungue usque in basin laminae, c. 0.38 cm. longum, ungue 0.16 cm. lato, lamina fere 0.3 cm. longa, 0.25 cm. lata. Gynostemium cum ovario angulum obtusum faciens, breve, crassum, dorso convexum, c. 0.125 cm. longum, clinandrio parvo, excavato, suborbiculari. Anthera cucullata, e basi suborbiculari-dilatata conduplicato-contracta angusta, obtusa, connectivo longitudinaliter costiformi-incrassato paululum ultra apicem producto, c. 0.075 cm. longa. Rostellum porrectum, rectum, antheram fere aequans, bacilliforme. Stigma alte excavatum, suborbiculare, margine elevato. Pes gynostemii cum ovario angulum obtusum faciens, latissimus, quadrangulus, parte inferiore sepalis lateralibus adnatus, apice in appendicem valde incurvam liberam latissimam transverse quadrangulam a dorso compressam truncatam in excavationem labelli quadrantem productus, inexplanatus bene 0.1 cm. longus.

Ovarium obconicum, 6-sulcatum, 0.075 cm. longum; pedicellus 0.175 cm. longus, in 0.075 cm. supra basin articulatus.

Dutch New-Guinea: Rouffaer-river, confluent C, 250 m., epiphytial in thinstemmed forest. (W. M. DOCTERS VAN LEEUWEN n. 10264, September 1926; "flowers very light green, lip more light yellow").

A distinct species well characterized by the shape of the petals, lip and anther. Description from herbarium and flowers preserved in alcohol.

Sect. *Uncifera*.

Bulbophyllum ramosum Schltr. in Schum. et Laut. Nachtr. Fl. D. Schutzgeb. Südsee (1905), 214; Fig. Atl. t. CCXXXIII, Nr. 926.

Dutch New-Guinea: Nassau-mountains west, 1500 m., epiphytial in primeval forest. (W. M. DOCTERS VAN LEEUWEN n. 10976, October 1926; "flowers light yellow").

I am not sure that it will be possible to keep upright *B. ramosum* Schltr., *B. ochroleucum* Schltr. and *B. rostratum* J. J. S. The latter much resembles *B. ramosum* Schltr. n. 20282, whereas *B. ochroleucum* Schltr. n. 19822 is intermediate between *B. ramosum* Schltr. n. 20282 and *B. ochroleucum* Schltr. n. 18884.

Sect. *Ischnopus* (cum *Hedyothyrsus*).

Bulbophyllum Mac Gregorii Schltr. in Fedde Rep. X (1911), 252; Orch. D. N. Guinea (1913), 872; Fig. Atl. t. CCCV, Nr. 1171. — *B. solutisepalum* J. J. S. in Nova Guinea XIV (1920), 470, t. LXXVII, 117.

Among the duplicates from SCHLECHTER's herbarium which the Buitenzorg Herbarium owes to the kindness of the director of the Botanical Museum and Gardens at Berlin, I found specimens of *B. Mac Gregorii* Schltr. An examination showed that *solutisepalum* J. J. S. should be classed with the same species.

SCHLECHTER placed the species in his section *Ischnopus*, myself thought its place to be in section *Hedyothyrsus*, a fact which induced me to a repeated close comparison of both sections, reckoned by SCHLECHTER even to different subgenera. This comparison led me to the conclusion that the differences are utterly insignificant and certainly not sufficient for keeping them separate. As to both habitus and inflorescence they perfectly agree, also in the floral structure, the only characteristic through which SCHLECHTER could maintain their separation consisting in the fact that in *Ischnopus* the lateral sepals are free, whereas in *Hedyothyrsus* they should coalesce, which as I mentioned already some time ago, is not quite correct as in fact they only cohere. SCHLECHTER mentions, indeed, about *Hedyothyrsus*, that at the base of the column-foot, a tooth is to be found, of which he does not make mention in the description of *Ischnopus*, but from the descriptions of the species it is apparent that a similar excrescence also occurs in *B. Mac Gregorii* Schltr. and *B. habropus* Schltr. It is not mentioned in *B. graciliscapum* Schltr. and *B. verrucirhachis* Schltr., but the sketch of the latter species actually shows a swelling at the base of the stigma. Of the species described by myself, which according to SCHLECHTER should be classed with *Ischnopus*, *B. cassideum* and *B. manifestans* possess a distinct tooth, *B. orbiculare* and *B. truncatisepalum* a less conspicuous thickening at the inferior margin of the stigma.

All taking together I do not believe that there is any reason why to maintain the sections in question next one another.

Sect. *Macrochuris*.

Bulbophyllum recurvumarginatum J. J. S. n. sp.

Tab. XIV, 45.

Rhizoma elongatum, dependens, basi radicans, dichotome ramosum, tenue, nitidulum, c. 30 cm. longum, ad c. 0.1 cm. diam. Pseudobulbi c. 1.4—4 cm. dissiti, adpressi vel cum rhizomate angulum acutum facientes, oblongo-ovoides, sicco c. 0.55—0.9 cm. longi, 1-folii. Folium lanceolatum, apice conduplicatum, acutum, basi breviter petiolato-contractum canaliculatumque, rigide coriaceum, c. 2.4—5.7 cm. longum, 0.4—0.65 cm. latum, basi contracta 0.2—0.3 cm. longa. Inflorescentiae e nodis rhizomatis, laxe pauciflorae, pedunculo tenui, c. 1.5 cm. longo, nonnullis vaginulis tubulosis donato, rachide filiformi, quaquaverse flexuosa, c. 0.9 cm. longa. Bractee adpressae, concavae, triangulae, leviter acuminatae, acutae, 1-nerviae, c. 0.35 cm. longae, 0.17 cm. latae. Flores c. 4. Sepalum dorsale oblongum, a medio angustatum, concavum, in caudam filiformem canaliculatam productum, 3-nervium, nervis dorso prominentibus, totum c. 1.3 cm. longum, bene 0.3 cm. latum, cauda 0.6 cm. longa. Sepala lateralia vix mentum breve latum obtusum formantia, oblique subovato-triangularia, concava, in caudam filiformem canaliculatam contracta, nervis 3 dorso prominentibus, tota c. 1.3 cm. longa, 0.375 cm. lata, cauda 0.67 cm. longa. Petala multo minora, porrecta, verticalia, oblique subovalia, apice breviter contracta (an semper?), obtusa, 1-nervia, c. 0.275 cm. longa, fere 0.2 cm. lata. Labellum mobile, recurvum, simplex, carnosum, inexplanatum oblongum, apice angustatum, parte inferiore lateribus erectis rotundatis convexis margine postico valde recurvis latiuscule canaliculata, parte antica a dorso compressa, conica, obtusa, supra sulco longitudinali antice evanescente instructa, supra rugosum, subtus longitudinaliter canaliculatum, glabrum, c. 0.34 cm. longum, fere 0.2 cm. latum. Gynostemium breve, crassum, marginibus anticis leviter rotundato-dilatatis erectis in pedem gynostemii productis, absque anthera c. 0.12 cm. longum, clinandrio concavo, margine postico recurvulo et angulato-exciso, auriculis brevibus triangulis acute acuminatis. Anthera alte cucullata, brevis, connectivo convexo-costiformi-incrassato, 0.075 cm. lata. Stigma alte excavatum, obovatum, basi in formam canaliculae brevis in pedem gynostemii decurrens. Pes gynostemii cum ovario angulum subrectum faciens, inexpandum 0.27 cm. longus, parte inferiore recta, sepalis lateralibus adnata, gynostemii marginibus decurrentibus canaliculata, c. 0.2 cm. longa, parte superiore (c. $\frac{2}{5}$) tenuiore, cum parte inferiore subcalliformi, a sepalis libera, valde incurva, lineari, a dorso compressa, apice paululum dilatata truncataque, 3-nervia. Ovarium breve, obconicum, obtuse trigonum, 6-sulcatum, 0.13 cm. longum; pedicellus c. 0.15 cm. longus, in 0.05 cm. supra basin articulatus.

Dutch New-Guinea: Nassau-mountains, Exploration-bivouac, 1200 m., epiphytically in primeval forest. (W. M. DOCTERS VAN LEEUWEN n. 10773, October 1926; "flowers light cream-coloured").

From the allied species this is distinguished by the strongly recurved margins of the lip. Moreover it differs from *B. dispersum* Schltr. in the more distant pseudobulbs, longer rhizome, larger leaf, larger flowers, broader petals, less curved lip, from *B. pensile* Schltr. in the much narrower leaf, much shorter raceme, acute auricles of the column, from *B. macrochuris* Schltr. in the much narrower leaf, relatively shorter tail of the sepals, broader petals, from

B. glaucum Schltr. in the much narrower leaf, more-flowered inflorescence, differently coloured flowers, from *B. cavistigma* J. J. S. in the larger flowers, broader petals, different column, from *B. fatuum* J. J. S. in the larger flowers, less flowered inflorescences, subulate auricles of the column.

Description from a single dried specimen with one inflorescence preserved in alcohol.

Sect. *Trachyrhachis*.

Bulbophyllum verrucibracteum J. J. S. in Fedde Rep. XII (1913), 405; in Nova Guinea XII (1916), 411, t. CLV, 288.

Dutch New-Guinea: Rouffaer-river, confluent C, 250—300 m., epiphytial in primeval forest. (W. M. DOCTERS VAN LEEUWEN n. 10249, "flower dark red", n. 10335, "flower red, dorsal sepal white", September 1926).

Sect. *Hymenobractea*.

Bulbophyllum infundibuliforme J. J. S. in Ic. bog. II (1903), 103, t. CXX A; etc.

Dutch New-Guinea: Rouffaer-river, 175 m., hills, primeval forest. (W. M. DOCTERS VAN LEEUWEN n. 10145, August 1926). Nassau-mountains, Rouffaer-river, 400 m., epiphytial in primeval forest. (W. M. DOCTERS VAN LEEUWEN n. 10768, October 1926).

Sect. *Dialeipanthæ*.

Bulbophyllum ligulifolium J. J. S. n. sp.

Tab. XIV, 46.

Rhizoma repens, ramosum, parce radicans, teres, sicco c. 0.16—0.2 cm. diam. Pseudobulbi c. 1—1.4 cm. dissiti, elongati, sicco petioliformes, c. 1.7—2 cm. longi, i-folii. Folium angustissimum, sub lanceolato-lineare, apicem versus angustatum, subacutum, crasse lateraliter compresso-apiculatum, basi sensim subpetiolato-angustatum canaliculatumque, costa media supra sulcata subtus obtuse prominente, coriaceum, c. 14—16 cm. longum, 0.9—1.1 cm. latum. Inflorescentia e basi pseudobulborum, intervallis plures flores gignens, pedunculo tenui, c. 16.5 cm. longo, inferne vaginulis c. 4 tubulosis donato, rachide flexuosa, punctata, c. 2.5 cm. longa, internodiis c. 0.3—0.325 cm. longis. Bractee alternatim bifariae, oblique infundibuliformes, incurvulae, valde carinatae, carina longe ultra apicem producta lateraliterque compressa, acutae, punctatae, dorso c. 0.5 cm. longae. Flores c. 9 (vel plures), c. 2 cm. longi, 1.9 cm. lati. Sepalum dorsale patens, incurvulum, obtusangule canaliculatum cum lateribus convexis, elongato-quinquangulare, a $\frac{1}{3}$ supra basin sensim angustatum, acutum, ima basi utrinque dente parvo donatum, 7-nervium, bene 2 cm. longum, in $\frac{1}{3}$ supra basin 0.63 cm. latum. Sepala lateraliter a dorsali remote inserta, patentissima, incurva, superne subparallela, superne cymbiformi-conduplicata, valde carinata, carina ultra apicem lateraliter compresso-producta, expansa oblique oblonga, superne angustata, acuta, margine postico supra basin angulum obtusum facientia, 7-nervia, c. 2.4 cm. longa, 0.86 cm. lata. Petala parva, parte superiore recurva, e basi oblique dilatata longe subulato-contracta, acuta, convexa, 3-nervia, c. 0.5—0.53 cm. longa, basi 0.24 cm. lata. Labellum mobile, gynostemio parallelum et bene longius, vix recurvulum, carnosum, oblongum, superne paululum dilatatum, breviter obtuse acuminatum, superne convexum, basi lateribus crassis patentibus late canaliculatum cum costulis 2 longitudinalibus approximatis canalicula anguste lineari separatis, parte basali concava antice costis 2 oblique transversis

crassis irregulariter marginatis limitata, ceterum costis parallelis canaliculam limitantibus usque ad $\frac{3}{5}$ partes supra basin productis, dimidio inferiore subtus crasse carinatum cum canalicula longitudinali, c. 1.8 cm. longum, 0.8 cm. latum. Gynostemium longiusculum, rectum, dorso convexum, marginibus supra basin dente reverso instructum, cum anthera 0.67 cm. longum, clinandrio excavato, transverse semiorbiculari, auriculis parvis, triangulis cum denticulo obtuso in margine postico. Anthera cucullata, antice visa rotundato-quadrangula, connectivo longitudinali crasse gibboso, c. 0.14 cm. lata. Rostellum transversum, subtus convexum. Stigma magnum, concavum, quadrangulum, basi in crura 2 sinu late rotundato separata apice in dentes supra gynostemii basin excurrentia productum. Pes gynostemii cum ovario angulum acutum faciens, apice incurvulus, late linearis, truncatus, 0.675 cm. longus. Ovarium pedicellatum 6-sulcatum, furfuraceo-punctatum, 0.925 cm. longum, c. 0.2 cm. supra basin articulatam.

Dutch New-Guinea: Rouffaer-river, confluent C, 250 m, epiphytical in primeval forest. (W. M. DOCTERS VAN LEEUWEN n. 10324, September 1926; "flowers yellow, striped violet inside, lip orange-yellow").

Allied to *B. Papilio* J. J. S. and *B. caloglossum* Schltr. but i. a. differing from both in the column being provided with two teeth and the colour.

Description from a dried specimen and a single flower preserved in alcohol.

Bulbophyllum exasperatum Schltr. Orch. D. N. Guinea (1913), 747; Fig. Atl. t. CCXXXVII, Nr. 940.

Tab. XIV, 47.

Rhizoma abbreviatum, radicibus dense verrucosis. Pseudobulbi approximati, ovoidei, sicco 2.4—3 cm. longi, 1-folii, initio vaginis magnis ample tubulosis acutis inclusi. Folium lanceolatum, apice brevissime conduplicatum, acutum, basi sensim in petiolum angustatum, carinatum, sicco tenuiter coriaceum, c. 19.5—25.5 cm. longum, 3.4—4.25 cm. latum; petiolus canaliculatus, c. 2.4—3.6 cm. longus. Inflorescentiae e basi pseudobulborum, laxae, intervallis paucos flores gignentes, pedunculo 18.5—22 cm. longo, nonnullis vaginulis tubulosis donato, rachide c. 7 cm. longa, internodiis ad c. 3 cm. longis. Bractee e basi tubulosa conduplicatae, carinatae, carina in apiculum conspicuum incurvulum valde lateraliter compressum a latere visum triangulum obtusum productae, utrinque sparse punctatae, c. 2.4 cm. longae. Flores c. 3—4, intervallis florentes, conspicui, sepalis intus et praesertim extus minute puncticulatis. Sepalum dorsale e basi oblongo-quadrangula angulis basilaribus rotundata concava superne paululum angustata dimidio superiore marginibus involutis longe canaliculato-acuminatum, intus ad basin verruculosum, c. 4—4.3 cm. longum, c. 1.25 cm. latum, subula 1.85 cm. longa. Sepala lateralia a sepalo dorsali remote inserta, pedi gynostemii inserta, e basi oblique lanceolata concava margine antico a basi anguste involuta apicem versus sensim conduplicato-angustata, valde carinata, intus ad basin verruculosa, c. 5.7—6.8 cm. longa, basi 0.8 cm. lata. Petala inter sepala inserta, ad pedem gynostemii decurrentia, oblique triangula, sensim acuminata, obtusiuscula, acute apiculata, 3-nervia, utrinque densius versus apicem parce puncticulata, c. 1.7—1.9 cm. longa, 0.7 cm. lata. Labellum mobile, carnosum in $\frac{2}{5}$ partibus supra basin obtusangule recurvum, 3-lobum, subtus conspicue canaliculatum, supra visum oblongo-quinquangulare, $\frac{3}{5}$ partibus superioribus sensim angustatum, anguste obtusum, basi marginibus erectis late canaliculatum cum sulco alto, lobis lateralibus basilaribus parvis erectis intus convexis parte antica triangulis obtusis postice utrinque in auriculam reversam verticalem rotundatam exeuntibus, costis 2 ab

apice loborum lateralium decurrentibus carnosis erectis antice altioribus et magis approximatis a latere visis rotundato-triangularibus erosulis in $\frac{1}{3}$ supra basin abrupte terminantibus canaliculam aequilongam limitantibus, parte antica (lobo intermedio) leviter convexa, leviter longitudinaliter convexo-quinquecostata et parce conico-verruculosa, totum 1.65 cm., usque ad locum insertionis 1.15 cm. longum, 0.6 cm. latum. Gynostemium conspicuum, oblique conicum, dorso convexum, subtus concavum, marginibus anticis in lobulum rotundatum dilatatis, ultra medium bifidum, totum c. 1 cm. longum, clinandrio concavo, filamento brevi filiformi, auriculis elongatis, antheram longe superantibus, dimidio inferiore falcato-incurvis oblique oblongo-quadrangularibus, parte superiore parallelis rectis crasse subulatis acutiusculis, medio dente falcato porrecto donatis. Anthera cucullata, ambitu orbicularis, basi rotundato-bilobula, connectivo in callum conspicuum porrectum a latere visum triangulum obtusum nasiformem incrassato. c. 0.275 cm. lata. Stigma magnum, faciem inferiorem gynostemii fere omnino occupans, quadrangulum. Pes gynostemii cum ovario angulum rectum faciens, incurvus, latè linearis, apicem versus paululum angustatus, truncatus, infra stigma conspicue convexo-incrassatus, 0.9 cm. longus. Ovarium obconicum, 6-sulcatum, dense punctatum, c. 0.8 cm. longum; pedicellus paulo tenuior, minus dense punctatus, 1.7 cm. longus. Capsula fusiformis, c. 5 cm. longa, in valvas 3 angustas 3 latiores basi apiceque connexas dehiscens, pedicello 2.8 cm. longo.

Dutch New-Guinea: Nassau-mountains, Exploration-bivouac, 1200 m., epiphytical in primeval forest. (W. M. DOCTERS VAN LEEUWEN n. 10775, October 1926; "flowers light yellow, lip with violet").

Description from herbarium and a flower preserved in alcohol.

Bulbophyllum tenuipes Schltr. Orch. D. N. Guinea (1913), 757; Fig. Atl. t. CCL, Nr. 953.

Dutch New-Guinea: Nassau-mountains, Exploration-bivouac, 1200 m., epiphytical in primeval forest. (W. M. DOCTERS VAN LEEUWEN n. 10777, October 1926; "flowers striped red").

Sect. *Stenochilus*.

Bulbophyllum Hahlianum Schltr. in Schum. et Laut. Nachtr. Fl. D. Schutzgeb. Südsee (1905), 204; Fig. Atl. t. CCXXXXVI, Nr. 935; etc.

Dutch New-Guinea: Mamberamo, Albatros-bivouac, 100 m., thin forest on hill ridge. (W. M. DOCTERS VAN LEEUWEN n. 9013, 7 May 1926; "flowers white with red dots arranged in stripes").

(**Bromheadia** Lndl.

Sect. *Eubromheadia*.

Bromheadia pulchra Schltr. Orch. D. N. Guinea (1912), 367; Fig. Atl. t. CXXXII, Nr. 493. — *B. palustris* Lndl. var. *papua* J. J. S. in Nova Guinea VIII (1909), 26, t. IX, 26.

Dutch New-Guinea: Rouffaer-river, 175 m., hills, moorland-forest, common. (W. M. DOCTERS VAN LEEUWEN n. 9812, August 1926). Same locality, confluent C, 250 m., thinstemmed forest, locally common. (W. M. DOCTERS VAN LEEUWEN n. 10268, September 1926).

Many of the inflorescences produced young plants.

Thelasis Bl.

Sect. Hemithelasis.

Thelasis sphaerocarpa J. J. S. in Nova Guinea XII (1916), 430, t. CLXII, 305; etc.

Dutch New-Guinea: Mamberamo, Albatros-bivouac, 100 m., epiphytical in thin forest on hill ridge, low on the trunks, common. (W. M. DOCTERS VAN LEEUWEN n. 9010, 7 May 1926; "buds orange-brown, flowers white").

Phreatia Lndl.

Sect. Rhizophyllum.

Phreatia cucullata J. J. S. in Nova Guinea VIII (1909), 106, t. XXXVI, 119.

Dutch New-Guinea: Rouffaer-river, confluent C, 300 m., epiphytical in primeval forest. (W. M. DOCTERS VAN LEEUWEN n. 10332, September 1926).

Phreatia goliathensis J. J. S. in Bull. Jard. Bot. Buit. 2e sér. XIII (1914), 73; in Nova Guinea XII (1916), 437, t. CLXVII, 313.

Dutch New-Guinea: Rouffaer-river, 175 m., hills, epiphytical in primeval forest. (W. M. DOCTERS VAN LEEUWEN n. 10018, August 1926). Same locality, confluent C, 250 m., primeval forest, high in the trees. (W. M. DOCTERS VAN LEEUWEN n. 10440, September 1926). Nassau-mountains, Exploration-bivouac, 1200 m., epiphytical in primeval forest. (W. M. DOCTERS VAN LEEUWEN n. 10774, October 1926).

Phreatia petiolata Schltr. in Schum. et Laut. Nachtr. Fl. D. Schutzgeb. Südsee (1905), 929; Fig. Atl. t. CCCXXVII, Nr. 1258; etc.

Dutch New-Guinea: Mamberamo, Albatros-bivouac, 75 m., hills, epiphytical in primeval forest. (W. M. DOCTERS VAN LEEUWEN n. 11187, November 1926).

Sect. Bulbophreatia.

Phreatia bicostata J. J. S. in Bull. Dép. Agric. Ind. Néerl. XIX (1908), 31; in Nova Guinea VIII (1909), 105, t. XXXV, 116; XII (1913), 97.

Dutch New-Guinea: Nassau-mountains, 2500 m., epiphytical in alpine forest. (W. M. DOCTERS VAN LEEUWEN n. 10828, October 1926). Same locality, 2600 m., epiphytical in moss-grown forest. (W. M. DOCTERS VAN LEEUWEN n. 10897, October 1926).

Acriopsis Reinw.

Acriopsis javanica Reinw. Fl. Lit. II, 4; etc.

var. **Nelsoniana** J. J. S. in Nova Guinea XIV (1929), 492; etc.

Dutch New-Guinea: Rouffaer-river, 175 m., hills, epiphytical in primeval forest. (W. M. DOCTERS VAN LEEUWEN n. 10143, August 1926; "flowers yellow, lip white, column green"). Nassau-mountains, Exploration-bivouac, 900 m., epiphytical in primeval forest. (W. M. DOCTERS VAN LEEUWEN n. 10713, October 1926; "flowers yellow, lip white").

Thrixspermum Lour.

Sect. Orsidice.

Thrixspermum validum J. J. S. in Bull. Dép. Agric. Ind. Néerl. XIX (1908), 37; in Nova Guinea VIII (1909), 120, t. XLI, 136.

Dutch New-Guinea: Mamberamo, Albatros-bivouac, 50 m., epiphytical in primeval forest. (W. M. DOCTERS VAN LEEUWEN n. 9626, July 1926).

Chamaeanthus Schltr.

Sect. Ventrilabium.

Chamaeanthus carinatus J. J. S. n. sp.

Tab. XV, 48.

Planta pusilla. Caulis brevissimus, 3—4-folius, radicibus crassiusculis. Folia recurvula, oblique lineari-lanceolata, inaequaliter obtuse bilobula, supra in utraque parte canaliculae convexa, dorso carinata, carina in apiculum lateraliter compressum producta, carnosa, c. 1—2.8 cm. longa, 0.24—0.5 cm. lata; vaginae breves, tubulosae, lateraliter compressae. Inflorescentiae plus minusve laxae, pluri-ad multiflorae, folia superantes, pedunculo brevissimo, tenui, 0.3—0.6 cm. longo, rachide tenui, angulata, c. 4.3 cm. longa, internodiis 0.2—0.6 cm. longis. Bractae parvae, adpressae, ambitu quinquangulares, acute apiculato-acuminatae, concavae, dorso carinatae verruculosaeque, c. 0.1 cm. longae, 0.08 cm. latae. Flores c. 11—17, simultanei, parvi, c. 0.37 cm. lati, 0.425 cm. longi, sepalis basi breviter subcampanulato-conniventibus, recurvulis, apice vix incurvulis, concavis. Sepalum dorsale oblongum, obtusum, 3-nerviū, nervis exterioribus tenuissimis, 0.375 cm. longum, 0.13 cm. latum. Sepala lateralia oblique oblonga, obtusa, nervis sepalis dorsalibus, 0.35 cm. longa, bene 0.1 cm. lata. Petala oblique sublinearia, obtusa, concava, 1-nervia, 0.36 cm. longa, 0.075 cm. lata. Labellum ut videtur mobile, minimum, ealcaratum, 3-lobum, recurvulum, lateraliter compressum, marginibus erectis canaliculatum, subtus ad basin transverse rotundato-incrassatum, inter basin et apicem subtus rotundato-ventricosocarinarum, supra visum oblongum, apicem versus angustatum, 3-nerviū, bene 0.1 cm. longum, 0.06 cm. latum; lobi laterales erecti, parte antica libera porrecti, paralleli, parvi, dentiformes, oblique trianguli, acuti; lobus intermedius porrectus, recurvulus, laterales bene superans, obtusus, concavus. Gynostemium brevissimum, crassum, absque anthera 0.05 cm. longum, clinandrio alte excavato, subsemiobiculari, pariete postico rotundato, vix apiculato. Anthera cucullata, ambitu rotundato-quadrangula, apice rotundato-bilobula, canalicula inter thecas convexas, basi rotundato-bilobula. Pollinia 4, in corpuscula 2 subglobosa unita, extus convexa, intus subplana, posteriora quam anteriora minora, stipite sessili late rotundato-rhombeo obtuso convexo, glandula triangula convexa stipiti subaequimagna. Stigma magnum, alte excavatum, bene in pedem gynostemii decurrens, margine inferiore elevato subgibboso. Pes gynostemii cum ovario angulum obtusum faciens, incurvulus, linearis, $\frac{2}{5}$ partibus superioribus a sepalis lateralibus liber, truncatus, fere 0.1 cm. longus. Ovarium 6-sulcatum, cum pedicello 0.15 cm. longum.

Dutch New-Guinea: Rouffaer-river, 175 m., hills, river-bank, epiphytical. (W. M. DOCTERS VAN LEEUWEN n. 9892, August 1926; "leaves reddish, flowers cream-coloured, pedicel reddish").

I have described this plant provisionally as a *Chamaeanthus*, although I have the conviction that in future it shall have, with the allied species, to constitute a distinct genus. The

reason why I for the present do not proceed to this arrangement is that it is as yet uncertain which species should have to be reckoned to it.

Chamaeanthus Schltr. was never described by the author. The publication was done by myself in Volume VI of the Flora of Buitenzorg, p. 552.

The genus remained monotypical until SCHLECHTER in the year 1913 added to it two species from New-Caledonia, described by himself before as *Sarcochilus*, viz. *Ch. Robertsii* Schltr. and *Ch. minimus* Schltr., and moreover joined to it two new species from New-Guinea, *Ch. gracilis* Schltr. and *Ch. laxus* Schltr. Finally OAKES AMES described a species from the Philippines, viz. *Ch. Wenzelii* Ames.

The new species described above differs from the type of the genus, *Ch. brachystachys* Schltr., chiefly in the four unequal pollinia, but moreover by the not subulate sepals and petals, the small dentiform sidelobes directed forward and the lip a little bulging beneath. For all certainty I have once more examined the structure of the pollinia in *Ch. brachystachys*, enabled to it by the kindness of Mr. D. VAN MULLEM, Java, who at my request forwarded to me well flowered material preserved in alcohol. My earlier description proved to be quite correct.

Among the material collected by DOCTERS VAN LEEUWEN a species was met with which is doubtless closely allied to *Ch. laxus* Schltr., the dried material, however, does not allow to decide whether the plant is new or coincides with *Ch. laxus* Schltr.

Although in SCHLECHTER's sketch of *Ch. laxus* the thickening on the lower side of the lip has not been delineated, the species belongs undoubtedly to this affinity. Whether or not this is also the case with *Ch. gracilis* Schltr. seems a little questionable to me. The pollinia of *Ch. minimus* Schltr. are quite unknown, whereas the number of those of *Ch. Robertsii* Schltr. has not been mentioned, which makes that these two species for the present cannot properly be classified.

No more the pollinia of *Ch. Wenzelii* Ames have been described. For the rest, however, the description tallies so well with that of *Ch. brachystachys*, that I have no doubt about its being a true *Chamaeanthus*; relying on the description one might even be inclined to look at it as identic with *Ch. brachystachys*.

The genus might provisionally be divided into two sections.

1. Sect. *Euchamaeanthus*. Sepals and petals subulate. Lip with broad, blunt sidelobes. Pollinia 2, somewhat grooved at the base.

2. Sect. *Ventrilabium*. Sepals and petals blunt. Lip with small toothlike side-lobes projecting forward, somewhat bulging or keeled at the underside. Pollinia 4, the foremost larger than the posterior ones.

Description from materials preserved in alcohol.

Sarcochilus R. Br.

Sarcochilus Moorei Schltr. Orch. D. N. Guinea (1913), 967; etc.

Dutch New-Guinea: Mamberamo, opposite Albatros-bivouac, 100 m., epiphytical in thin forest on summit of hill. (W. M. DOCTERS VAN LEEUWEN n. 9519, July 1926). Same locality, near Albatros-bivouac, 50 m., river-bank, epiphytical. (W. M. DOCTERS VAN LEEUWEN n. 9597, July 1926). Meervlakte, Rouffaer-river, Motor-bivouac, 100 m., epiphytical in bank-forest. (W. M. DOCTERS VAN LEEUWEN nrs. 11106 and 11164, November 1926).

Phalaenopsis Bl.**Phalaenopsis amabilis** Bl. Bijdr. (1825), 294; Tab. fig. 44; etc.

Dutch New-Guinea: Rouffaer-river, 175 m., primeval forest. (W. M. DOCTERS VAN LEEUWEN n. 9989, August 1926).

Saccolabiopsis J. J. S.**Saccolabiopsis papuana** J. J. S. n. sp.

Tab. XV, 49.

Planta parva. Caulis abbreviatus, 3—4-folius, radicibus numerosis crassiusculis tortilibus. Folia lanceolata, versus apicem angustata, inaequaliter bidentata, in utraque parte canaliculae longitudinalis convexa, subtus secundum costam obtusangule incrassata, carnosae, c. 2.5—4 cm. longa, 0.7—1.2 cm. lata; vaginae breves, tubulosae, apice apertae. Inflorescentiae axillares, densius multiflorae, pedunculo tenui, apice incrassato, c. 2—2.8 cm. longo, nonnullis vaginulis tubulosis donato, rachide incrassata, valde interrupte 5-angulato-costata cum lateribus concavis, 3.75 cm. superante. Bracteae adpressae, oblongo-triangularae, subacuminatae, anguste obtusae, concavae, c. 0.22 cm. longae, 0.1 cm. latae. Flores quaquaversi, patentes, incurvi, parvi, carnosuli, c. 0.34 cm. longi, bene 0.2 cm. lati. Sepalum dorsale superne incurvum, valde concavum, subobovato-oblongum, truncato-obtusum, 1-nerviū, bene 0.2 cm. longum, bene 0.1 cm. latum. Sepala lateralia porrecta, leviter concava, oblique oblonga, obtusa, costa media dorso obtuse incrassata, 1-nervia, c. 0.2 cm. longa, bene 0.1 cm. lata. Petala porrecta, oblique angulato-subobovato-oblonga, obtusa, basin versus sensim angustata, superne repandula, 1-nervia, costa dorso obtuse prominente, c. 0.17 cm. longa, bene 0.075 cm. lata. Labellum immobile, sub gynostemii porrectum, basi gynostemio non adnatum, basi vix contractum, 3-lobum, calcaratum, subtus in sinu inter lobum intermedium et calcar costula longitudinali obtusangula instructum, totum 0.23 cm., usque ad apicem ovarii 0.22 cm. longum, 0.16 cm. latum; lobi laterales ad faucem calcaris erecti, remoti, oblique quadranguli, obtusi, leviter concavi, margine antico incrassati et in basin lobi intermedii decurrentes, costulam transversam formantes; lobus intermedium porrectus, rectus, cum calcaris angulum obtusum faciens, triangulus, obtusissimus, fere 0.1 cm. longus, 0.125 cm. latus; calcar reversum, rectum, a dorso compressum, oblongum, obtusum, dorso longitudinaliter 3-costulatum, dorso 0.17 cm. longum. Gynostemium breve, crassum, latum, absque anthera 0.1 cm. longum, clinandrio concavo, apice obtusissimo. Pollinia 4, inaequalia, 2 anteriora majora, pyriformi-obovata, 2 postica multo minora angustioraque, apici lato recurvo convexo breviter tridentato stipitis cuneato-spathulati remote inserta, cum glandula triangula fere 0.1 cm. longa. Rostellum recurvum. Stigma majusculum, aequilateraliter trapeziforme, subquadrilobulatum. Ovarium curvatum, 6-sulcatum, c. 0.26 cm. longum.

Dutch New-Guinea: Nassau-mountains, Exploration-bivouac, 700 m., primeval forest, on the ends of the branches of a high *Pometia*. (W. M. DOCTERS VAN LEEUWEN n. 10681, October 1926; "flowers greenish yellow, lip white").

R. SCHLECHTER has in his Orchidaceae von Deutsch-Neu-Guinea split up the new proposed genus *Malleola* J. J. S. et Schltr. into two sections, viz. *Micranthobotrys* and *Eumalleola*. I have always had the idea that the first section was out of place here, and also SCHLECHTER already signified that this group might turn out later on to constitute a distinct genus. The

chief cause of this uncertainty is to be put down to the insufficient information about the pollinarium. Indeed, SCHLECHTER described it in detail with *M. pallida* Schltr., but afterwards it turned out that this description is incorrect in the principal point, viz. the number.

So when in the collection DOCTERS VAN LEEUWEN I came across a couple of species of the genus *Saccolabiopsis*, it became clear to me that also the species arranged by SCHLECHTER with section *Micranthobotrys* should be classed with the said genus. A closer examination of both descriptions and sketches confirmed me in that opinion. It concerns the following species.

Saccolabiopsis microphyton J. J. S. comb. nov. — *Malleola microphyton* Schltr. Orch. D. N. Guinea (1913), 980; Fig. Atl. t. CCCXXXIV, Nr. 1328. — *Saccolabium microphyton* Schltr. in Schum. et Laut. Nachtr. Fl. D. Schutzgeb. Südsee (1905), 228.

Saccolabiopsis pallida J. J. S. comb. nov. — *Malleola pallida* Schltr. l. c. 980; Fig. Atl. t. CCCXXXV, Nr. 1329. — *Saccolabium pallidum* Schltr. l. c. 229.

Saccolabiopsis rara J. J. S. comb. nov. — *Malleola rara* Schltr. l. c. 980; Fig. Atl. t. CCCXXXV, Nr. 1330.

These and both anon described species take the number of species of the genus to seven.

According to SCHLECHTER's descriptions and sketches the presently proposed new species are well distinct from those of SCHLECHTER.

S. papuana differs from *S. alata* in the narrower leaves, thinner and more distinctly winged peduncle, smaller thinner flowers with a three-lobed midlobe, a thinner spur and the column much more attenuate at the base.

Description from materials preserved in alcohol.

Saccolabiopsis alata J. J. S. n. sp.

Tab. XV, 50.

Pusilla. Caulis abbreviatus, c. 0.8 cm. longus, c. 3-folius, radicibus satis crassis tortilibus. Folia anguste lanceolata, falcata, inaequaliter bidentata, dente minore triangulo acuto vel obtusiusculo, dente majore oblique truncato, basin versus leviter angustata conduplicataque, supra in utraque parte costae mediae sulcatae convexa, dorso carinata, carnosula, c. 2—2.8 cm. longa, 0.475—0.54 cm. lata; vaginae breves, tubulosae, lateraliter compressae, apice apertae, longitudinaliter prominenter obtuse nervosae. Inflorescentiae vaginam dorso ad basin perforantes, pauciflorae, pedunculo tenui, apicem versus sensim latius dilatato, c. 1.4 cm. longo, vaginulis 2 tubulosis carinatis donato, rachide anguste alata, c. 0.5 cm. longa (haud bene evoluta). Bractee adpressae, canaliculato-concavae, triangulae, acutae, carinatae, carinae apice lateraliter compresso-apiculatae. Flores c. 7, parvi, quaquaversi, patentissimi, incurvi, c. 0.325 cm. longi. Sepalum dorsale ovarium continuum, apice incurvulum, valde concavum, oblongum, apicem versus paululum dilatatum, rotundatum, 1-nervium, c. 0.22 cm. longum, 0.08 cm. latum. Sepala lateralia oblique oblonga, apicem versus leviter dilatata, obtusissima, concava, 1-nervia, costa dorso incrassata, 0.18 cm. longa, fere 0.1 cm. lata. Petala apice incurvula, concava, oblique subangulato-oblonga, obtusa, basin versus angustata, 1-nervia, c. 0.16 cm. longa, 0.07 cm. lata. Labellum immobile, marginibus posticis gynostemio utrinque adpressum, basi vix contractum, 3-lobum, calcaratum, totum c. 0.24 cm., usque ad apicem ovarii 0.2 cm. longum, ad lobos laterales 0.12 cm. latum; lobi laterales ad faucem calcaris erecti, oblique quadranguli, basi lati, obtusi, margine postico subretusi, margine antico intus costula in basin lobi intermedi

decurrente instructi; lobus intermedius porrectus, 3-lobulus, excavatione parvo subtus in flexu inter lobum intermedium et calcar gibbum parvum formante ad basin, ambitu triangulus, c. 0.07 cm. longus, fere 0.125 cm. latus, lobulis basilaribus parvis patentissimis rotundatis a lobulo intermedio subplano supra leviter convexo triangulo obtuso carnosulo sinibus levibus separatis; calcar cum ovario angulum acutum faciens, rectum, leviter a dorso compressum, antice visum oblongo-conicum, a latere visum oblongum basi infundibuliformi-ampliatum, pariete postico leviter sigmoideum, obtusum, dorso leviter tricolatum, usque ad basin labelli 0.18 cm. longum. Gynostemium rectum, basi antice valde contractum, oblique clavatum, 0.125 cm. longum, clinandrio concavo, pariete postico producto semiorbiculari leviter irregulariter marginato, intus costula longitudinali infra apicem in dentem terminante instructo. Anthera cucullata, cordata, basi breviter retusa, in rostrum triangulum apice breviter contracto recurvum truncatum spurie retusum contracta, 0.07 cm. lata. Pollinia 4, valde inaequalia, 2 majora pyriformia basi acuta, 2 minora subsemiobovata, curvula, apici minute obtuse tridentato stipitis cuneato-spathulati in $\frac{3}{5}$ partibus supra basin obtusangule recurvuli 0.06 cm. longi remote inserta, glandula subovali. Rostellum recurvum, crassum, submalleiforme. Stigma alte excavatum, quadrilobulatum, margine inferiore dente instructum. Ovarium pedicellatum curvatum, 6-sulcatum, in sulcis leviter furfuraceum, 0.2 cm. longum.

Dutch New-Guinea: Rouffaer-river, 175 m., hills, epiphytical. (W. M. DOCTERS VAN LEEUWEN n. 9894, August 1926; "flowers very light yellow, lip white").

Description from herbarium and a specimen preserved in alcohol.

Robiquetia Gaud.

Robiquetia gracilistipes J. J. S. in *Natuurk. Tijdschr. Ned. Ind.* LXXII (1912), 43; etc.

Dutch New-Guinea: Mamberamo, Albatros-bivouac, 30 m., epiphytical in primeval forest. (W. M. DOCTERS VAN LEEUWEN n. 9142, May 1926).

Robiquetia Mooreana J. J. S. in *Natuurk. Tijdschr. Ned. Ind.* LXXII (1912), 44; etc.

Dutch New-Guinea: Mamberamo, Albatros-bivouac, 50 m., epiphytical in swampy forest. (W. M. DOCTERS VAN LEEUWEN n. 9436, July 1926; "flowers purple"). Same locality, bank of confluent, on a tree hanging over the water, dependent, inflorescence pointing downward. (W. M. DOCTERS VAN LEEUWEN n. 9644, July 1926; "flowers purple, lip white").

Hymenorchis Schltr.

Hymenorchis glomeroides J. J. S. in *Nova Guinea XIV* (1929), 495, t. LXXXIII, 134.

Dutch New-Guinea: Nassau-mountains west, 1500 m., epiphytical in primeval forest. (W. M. DOCTERS VAN LEEUWEN n. 10965, October 1926; "flowers light yellow").

Microtatorchis Schltr.

Sect. *Geissanthera*.

Microtatorchis flava J. J. S. n. sp.

Tab. XV, 51.

Planta pusilla. Caulis abbreviatus, c. 5-folius, radicibus crassiusculis, teretibus vel subtus paululum applanatis. Folia patentia, lanceolata, supra obtusangule canaliculata cum lateribus

convexis, praesertim versus apicem irregulariter marginata, subtus angulato-convexa et praesertim apice leviter obtuse carinata, carina apice acute triangulo-apiculata, basi angustata conduplicataque, carinosa, c. 0.45—0.95 cm. longa, 0.2—0.225 cm. lata; vaginae brevissimae, se amplexantes. Inflorescentiae axillares, laxae, succedaneae paucos flores gignentes, pedunculo tenui, versus apicem angulato-incrassato, ad c. 1 cm. longo, rachide flexuosa, angulata, 0.8 cm. vel plus longa. Bracteae patentes, triangulae, basi concavae, subulato-acuminatae, carinatae, carina in rachidem decurrentes, 0.15 cm. longae, appendice stipulacea paulo brevior, compresso-subulata acutissima etiam in rachidem decurrente utrinque. Flores c. 0.36 cm. lati, fere 0.5 cm. longi, sepalis petalisque inferne in tubum subtus fissum extus nervis prominentibus 5-costatum explanatum bene 0.4 cm. latum 0.38 cm. longum connatis, 1-nerviis. Sepalum dorsale totum 0.35 cm. longum, parte libera lineari-subulata, bene 0.2 cm. longa, basi bene 0.075 cm. lata. Sepala lateralia 0.4 cm. longa, parte libera oblique lineari-subulata, 0.275 cm. longa, basi 0.075 cm. lata. Petala sepalis paulo breviora, tota 0.34 cm. longa, parte libera e basi oblique triangulo-dilatata subulato-acuminata, bene 0.2 cm. longa, basi fere 0.1 cm. lata. Labellum porrectum, simplex, calcaratum, subrectum, e basi triangula basi utrinque rotundata valde concava longe subulato-acuminatum, esetiferum, excavatione semiorbiculari antice triangulo-producta ad basin, subtus convexum, 4-nerviis, nervis in c. $\frac{1}{4}$ supra basin binis confluentibus in medio laminae nervum singulum facientibus, c. 0.35 cm. longum, 0.125 cm., explanatum 0.13 cm. latum; calcar reversum, incurvulum, cum ovario angulum acutum, cum lamina angulum obtusum fere rectum faciens, oblique depresso globosum, basi contractum, postice valde impressum, sectione transversa rotundato-subtrilobulato-trigonum, intus glandula donatum, c. 0.08 cm. longum, 0.1 cm. latum. Gynostemium brevissimum, transversum, dorso convexum, bilobum, c. 0.05 cm. longum, fere 0.1 cm. latum, clinandrio semiorbiculari, auriculis horizontalibus divergentibus brevibus latis oblique quadrangulis obtusis extus convexis intus concavis. Anthera cucullata, triangulo-reniformis, in rostrum brevissimum tenue truncatum producta, fere 0.05 cm. lata. Pollinia 2, subobovata, cum stipite spathulato convexo recurvo et glandula majuscula oblonga c. 0.5 cm. longa. Ovarium crassiusculum, valde 6-costatum, costis irregulariter marginatis, fere 0.2 cm. longum; pedicellus paulo tenuior, 0.075 cm. longus.

Dutch New-Guinea: Nassau-mountains, Exploration-bivouac, 1200 m., epiphytical in primeval forest. (W. M. DOCTERS VAN LEEUWEN n. 10791, October 1926; "flowers yellow").

The nearest ally seems to be *M. brachyceras* Schltr., from which it, according to the description, differs in the shorter leaves, smaller flowers, the petals distinctly broadened at the base, the relatively larger spur.

Description from a single specimen with one flower preserved in alcohol.

Microtatorchis Doctersii J. J. S. n. sp.

Tab. XVI, 52.

Planta pusilla. Caulis abbreviatus, radicibus tenuibus, teretibus, tortilibus, ad c. 11 cm. longis, ad 0.07 cm. diam. Folia 3—5, parva, lanceolata, obtusa vel acuta cum apiculo lateraliter compresso-subulato acuto, basi angustata conduplicataque, secundum costam mediam canaliculata cum lateribus convexis, dorso angulato-incrassata, subcarinata, apice carinata, carinosa, c. 1—1.3 cm. longa, 0.3—0.275 cm. lata; vaginae brevissimae. Inflorescentiae numerosae,

elongatae, valde multiflorae, subdensae, diu flores gignentes, pedunculo angulato, c. 1.2—2 cm. longo, vaginulis raris donato, rachide leviter flexuosa, compressa, alata, ad c. 3.75 cm. longa, cum bracteis 0.22 cm. lata, internodiis 0.15—0.16 cm. longis. Bractee alternatim bifariae, in rachidis lateribus latis sitae, patentes, incurvulae, concavae, triangulae, subulato-acuminatae, c. 0.1 cm. longae, appendice stipulacea brevior lateraliter compresso-subulata acuta in formam alae satis conspicuae basin versus angustatae in rachidem decurrente utrinque. Flores parvi, c. 0.25 cm. longi, 0.175 cm. lati, sepalis petalisque basi in tubum subtus fissum explanatum totum fere 0.2 cm. longum, 0.325 cm. latum connatis, 1-nerviis, partibus liberis porrectis divergentibus. Sepalum dorsale fere 0.2 cm. longum, parte libera anguste triangula, vix acuminata, acuta, 0.125 cm. longa, 0.06 cm. lata. Sepala lateralia 0.2 cm. longa, parte libera oblique anguste triangula, apice subcontracta, acutiuscula, concava, 0.15 cm. longa, basi 0.06 cm. lata. Petala breviora, c. 0.16—0.175 cm. longa, parte libera ovato-triangula, basi utrinque rotundata et sepalis oblecta, apicem versus angustata, acuta, bene 0.1 cm. longa, 0.075 cm. lata. Labellum porrectum, rectum, calcaratum, supra visum e basi abbreviato-ovata anguste triangulo-contractum, acutiusculum, esetiferum, marginibus supra basin incurvis excavationem transverse ovalem formans et a latere visum spurie 3-lobulum, subtus convexum, 4-nervium, a loco insertionis 0.16 cm. longum, 0.075 cm. latum; calcar reversum, ovario adpressum, breve, subglobosum, basi contractum, apice depresso-truncatum, nonnullis sulcis longitudinalibus obsolete lobulatum, bene 0.05 cm. longum, 0.08 cm. latum. Gynostemium brevissimum, dorso recurvulum, bilobum, 0.03 cm. longum, 0.06 cm. latum, clinandrio concavo, fere semiorbiculari, brachiis stigmaticis porrectis, brevibus, triangulis, obtusis; extus convexis, intus concavis, marginibus anticis V-formiter confluentibus. Anthera cucullata, anticé visa quadrangula, apicem versus angustata, retusa. Ovarium crassiusculum, costis 5 distinctis, costa antica subobsoleta, c. 0.075 cm. longum; pedicellus 0.04 cm. longus. Capsula oblique ovalis, curvata, 6-costata, verruculosa, c. 0.42 cm. longa, 0.25 cm. diam.

Dutch New-Guinea: Rouffaer-river, confluent C, 250 m., riverbank, on thin branches. (W. M. DOCTERS VAN LEEUWEN n. 10301, September 1926; "flowers greenish yellow").

Apparently near *M. muriculata* Schltr. but with the inflorescences not muriculate and rather dense and multiflorous.

Description from materials preserved in alcohol.

***Microtatorchis triangulipetala* J. J. S. n. sp.**

Tab. XVI, 53.

Planta pusilla. Caulis abbreviatus, radicibus numerosis, teretibus, subtus leviter applanatis, tortilibus, ad c. 10 cm. longis, 0.075—0.1 cm. diam. Folia c. 2—5, lanceolato-linearibus, saepe plus minusve falcata, acuta vel obtusiuscula, apiculata, basi angustata conduplicataque, supra in utraque parte canaliculae longitudinalis leviter convexa, carinata, carnosula, c. 1—1.5 cm. longa, 0.2—0.3 cm. lata; vaginae brevissimae. Inflorescentiae diu flores gignentes, valde multiflorae, pedunculo quadrialato, c. 0.5—0.8 cm. longo, rachide interrupte late quadrialata, alis apicem internodii versus sensim paulum dilatatis et in utraque bractee parte in appendicem liberam stipulaceam erecto-patentem lateraliter compressam triangulam acutam exeuntibus, internodiis c. 0.075—0.1 cm. longis. Bractee alternatim bifariae, patentissimae ad patentes,

triangulae, lateraliter-compresso-apiculatae, acutae, concavae, carinatae, carina in formam costae inter alas decurrente, c. 0.075—0.13 cm. longae. Flores parvi, bene 0.3 cm. longi, 0.27 cm. lati, sepalis petalisque inferne in tubum ultra medium 5-fidum subtus fissum tenuisculum carnosulo-angulatum explanatum totum c. 0.25 cm. longum, 0.44 cm. latum connatis, 1-nerviis, partibus liberis divergentibus carnosulis dorso obtusangule incrassatis. Sepalum dorsale 0.24 cm. longum, parte libera ovato-triangulari, obtusa, c. 0.14 cm. longa, 0.07 cm. lata. Sepala lateralalia 0.23 cm. longa, parte libera margine antico incurvo oblique angulato-canaliculata, oblique oblongo-triangulari, obtusa, 0.16 cm. longa, haud bene explanata 0.06 cm. lata. Petala minora, bene 0.2 cm. longa, parte libera oblique triangulari, acuta vel acutiuscula, basi truncata medio tantum affixa, bene 0.1 cm. longa, 0.1 cm. lata. Labellum porrectum, rectum, 3-lobum, calcaratum, subtus convexum, 4-nerviis, totum 0.27 cm., usque ad apicem ovarii 0.175 cm. longum; lobi laterales erecti, trianguli, acuti, membrana transversa conjuncti et excavationem postice apertum formantes; lobus intermedius porrectus, cum lobis lateralibus angulos obtusos faciens, anguste triangulus, superne trigonus, acutiusculus, esetifer; calcar reversum, ovario adpressum, oblique subglobosum, apice rotundato-truncatum, apice intus glandula donatum, 0.06 cm. longum. Gynostemium brevissimum, dorso convexum, brachiis stigmaticis porrectis remotis parallelis triangulis obtusis conduplicato-canaliculatis in excavationem labelli quadrantibus basi U-formiter confluentibus. Anthera cucullata, cordata, apice breviter obtusangule incurva angusta truncata minute retusa, 0.025 cm. lata. Pollinia 2, oblonga. Rostellum angustum, membranaceum. Ovarium breve, 6-costatum, cum pedicello 0.13 cm. longum. Capsula immatura brevissime pedicellata, oblique oblonga, curvata, costis 3 dorsalibus validis, 2 minoribus, omnibus minutissime denticulatis, costa sexta fascia lata convexa echinulata faciente, inter costas minute asperula, c. 0.4 cm. longa, 0.2 cm. diam.

Dutch New-Guinea: Rouffaer-river, 175 m., hills, epiphytically on the higher branches of a large tree. (W. M. DOCTERS VAN LEEUWEN n. 9970, August 1926; "flowers yellowish green").

Near *M. Doctersii* J. J. S. but i. a. with smaller flowers, blunt sepals, triangular petals, a different column and capsule.

Description from material preserved in alcohol.

Taeniophyllum Bl.

Sect. Brachyanthera.

Taeniophyllum tripulvinatum J. J. S. in Nova Guinea XIV (1929), 502, t. LXXXVI, 141.

Dutch New-Guinea: Mamberamo, Albatros-bivouac, 150 m., epiphytically in primeval forest on summit of hill. (W. M. DOCTERS VAN LEEUWEN n. 9486, July 1926; "flowers orange"). Same locality, opposite Albatros-bivouac, 75 m., epiphytically in thin forest on hill ridge. (W. M. DOCTERS VAN LEEUWEN n. 9589, July 1926; "flowers orange").

Sect. Rhynchanthera.

Taeniophyllum cymboglossum J. J. S. in Nova Guinea XIV (1929), 503, t. LXXXVI, 142.

Dutch New-Guinea: Van Rees-mountains, Van Gelderen-river, 100 m., swamp, primeval forest, on trunks. (W. M. DOCTERS VAN LEEUWEN n. 9295, May 1926; "flowers light yellow").

Taeniophyllum tamianum J. J. S. in Bull. Jard. Bot. Buit. 2e sér. XIII (1914), 74; in Nova Guinea XII (1916), 464, t. CLXXX, 335.

Dutch New-Guinea: Mamberamo, Albatros-bivouac, 100 m., hills, primeval forest. (W. M. DOCTERS VAN LEEUWEN n. 9006, 7 May 1926, on roots of *Pandanus*, "flowers light yellow"; n. 9638, July 1926, on *Myrmecodia*, "flowers yellow").

Sect. *Loboglossum*.

Taeniophyllum arachnites J. J. S. in Bull. Dép. Agric. Ind. Néerl. XIX (1908), 36; in Nova Guinea VIII (1909), 126, t. XLIII, 141.

Dutch New-Guinea: Mamberamo, Albatros-bivouac, 40 m., heterogenous but young forest. (W. M. DOCTERS VAN LEEUWEN n. 9000, 7 May 1926; "flowers light yellow").

Sect. *Trachyrhachis*.

Taeniophyllum apiculatum J. J. S. n. sp.

Tab. XVI, 54.

Caulis abbreviatus, radicibus elongatis, angustis, applanatis, c. 50 cm. longis, sicco 0.1—0.13 cm. latis. Inflorescentiae brevissimae, diu flores gignentes, multiflorae, c. 2.5 cm. longae, pedunculo abbreviato, rachide flexuosa, cum bracteis muricibus ramosis vestita, cum bracteis 0.275 cm. lata, internodiis c. 0.1 cm. longis. Bractee alternatim bifariae, patentissimae, rachidem amplectentes, triangulae, concavae, dorso apicem versus carinatae, dorso 0.1—0.125 cm. longae. Flores intervallis florentes. Sepalum dorsale patens, incurvum, concavum, e basi oblongo-ovata sensim angustatum, truncatum, 3-nerviū, c. 0.47 cm. longum, 0.16 cm. latum. Sepala lateralialia oblique ovato-oblonga, versus apicem angustata, obtusa, concava, dorso carinata, carina parce irregulariter dentata, 3-nervia, c. 0.375 cm. longa, 0.14 cm. lata. Petala more sepali dorsalis patentia, incurva, concava, oblique ovato-lanceolata, falcata, apicem versus sensim angustata, anguste obtusa, 1-nervia, c. 0.4 cm. longa, 0.14 cm. lata. Labellum simplex, calcaratum, totum c. 0.46 cm. longum, margine inferiore sigmoideum; lamina porrecta, gynostemio adpressa et bene longior, apice subincurvula, concava, supra visa oblongo-quadrangula, apicem versus paululum angustata, angulis rotundata, explanata ovalis, apiculo obtuso imposito, fauce calcaris longitudinali elongata utrinque fascia longitudinali satis lata incrassata postice incrassatione transversa limitata, c. 0.3 cm. longa, 0.2 cm. lata; calcar saccatum, amplum, breve, reversum, ovario adpressum, lateraliter compressum, a latere visum rotundato-subtrapezoideum, apice rotundato-obtusum, dorso 0.15 cm. longum, 0.2 cm. altum. Gynostemium brevissimum, dorso convexum, usque ad rostellum apicem 0.28 cm. longum, clinandrio concavo, lobulis stigmaticis ad basin gynostemii, brevibus, obtusis. Anthera cucullata, rostellum multo brevior, cordato-ovata, e basi brevi reniformi in rostrum conspicuum quam partem basilem latius triangulum acutiusculum convexum vix recurvulum producta, tenuis, 0.17 cm. longa, fere 0.1 cm. lata, thecis parvis orbicularibus. Pollinia 4, leviter compressa, oblique obovato-ovalia, cum stipite late lineari marginibus revolutis fere contiguis subtubuloso apice reflexo leviter oblique patelliformi, et glandula anguste oblonga convexa obtusa 0.25 cm. longa, glandula 0.1 cm. longa. Rostellum magnum, porrectum, canaliculatum, parte inferiore subtus convexum, breviuscule obtuse bilobulum. Ovarium pedicellatum curvatum, 6-sulcatum, in sulcis leviter furfuraceum, c. 0.26 cm. longum.

Dutch New-Guinea: Van Rees-mountains, Van Gelderen-river, 100 m., primeval forest, on thin branches. (W. M. DOCTERS VAN LEEUWEN n. 9288, May 1926; "flowers light yellow").

A distinct species of which I do not know a near ally.

Description from a dried specimen the only flower of which was preserved in alcohol.

Sect. *Trachylepus*.

Taeniophyllum dentilobum J. J. S. n. sp.

Tab. XVI, 55.

Caulis abbreviatus, radicibus elongatis, valde applanatis, ad c. 1.2 cm. longis, 0.25—0.5 cm. latis. Inflorescentiae densissime multiflorae, diu flores gignentes, pedunculo dense muriculato, c. 6.5 cm. longo, rachide crasse carnosa, dense muriculata, c. 3.4 cm. longa, cum bracteis ad c. 0.67 cm. lata, internodiis c. 0.175 cm. longis. Bractee alternatim bifariae, patentes, expansae triangulae, valde concavae, expansae subsemiorbiculares, abrupte subulato-acuminatae, dorso valde muriculatae, nervis dorso prominentibus, c. 0.25—0.3 cm. longae, apice 0.1—0.17 cm. longo, appendice stipulacea longe subulata muriculata acutissima 0.3—0.325 cm. longa utrinque. Flores intervallis florentes, magni, carnosuli, c. 3.2 cm. longi, sepalis petalisque divergentibus patentibus. Sepalum dorsale anguste lanceolatum, obtusum, acute conico-apiculatum, concavum, dorso furfuraceo-submaculatum, nonnullis muricibus ad basin, nervis 5 dorso vix incrassatis, c. 1.4 cm. longum, 0.34 cm. latum. Sepala lateralia anguste oblique lanceolata, obtusa, apice conduplicato-canaliculata, minute apiculata, concava, dorso subfurfuraceo-maculata, dorso ad basin minute muriculata, nervis 3, exterioribus basi furcatis dorso leviter incrassatis, costa media praesertim versus apicem obtuse incrassata, c. 1.4 cm. longa, 0.35 cm. lata. Petala oblique lanceolata, apicem versus angustata, anguste obtusa, concava, dorso ad basin vix muriculata, dorso secundum costam obtusangule incrassata, 3-nervia, c. 1.35 cm. longa, 0.35 cm. lata. Labellum longe calcaratum, lamina porrecta, gynostemium longe superante, 3-loba, marginibus erectis valde concava, apice recurvula, 11-nervia, carnosa, dorso medio parce furfuraceo-punctata, excavatione longitudinali angusta costulis aëutis limitata ad basin, explanata subovata, c. 1.2 cm., usque apicem loborum lateralium 0.825 cm. longa, basi 0.725 cm., ad lobos laterales 0.47 cm. lata; loborum lateralium pars libera minute dentiformis, porrecta, verticalis, triangula, acuta; lobus intermedius incrassatus, conduplicatus, supra visus triangulus, lateribus intus convexo-incrassatis fere contiguis, apice lateraliter compresso-productus obtusus et margine superiore parce obtuse denticulatus, subexpansus semiovalis, apice lateraliter compresso-conico-contractus, 0.4 cm. longus, 0.425 cm. latus; calcar reversum, cum ovario angulum acutum faciens, tenuiter lateraliter compresso-clavatum, vix sigmoideum, apice leviter contractum, obtusum, 1.8 cm. longum. Gynostemium breve, crassum, apice incurvum, basi conspicue dilatatum, dorso convexum, absque anthera 0.26 cm., usque ad apicem rostellii 0.56 cm. longum, clinandrio contracto, antice utrinque in lobulum rotundatum exeunte, transverse ovali. Anthera cucullata, antice visa transverse ovalis, in rostrum elongatum oblongo-triangulum apice valde recurvum obtusiusculum producta, 0.15 cm. lata. Pollinia 4, oblique subovalia, c. 0.08 cm. longa, stipite longissimo, lineari, in $\frac{2}{3}$ supra basin rectangule incurvo, apice spathulato-dilatato reflexo duplicato-patelliformi, inexpandso 0.475 cm. longo, paulum supra basin glandulae inserto, glandula elongata, lineari, 0.5 cm. longa, parte antica subulata 0.06 cm. longa. Rostellum elongatum, in stigmatis fronte deflexum, deinde porrectum, gynostemium bene superans, in excavationem labelli quadrans, lineare, supra subtusque canaliculatum cum costula in canalicula superiore,

apice bilobulatum, lobulis lateraliter compressis obtusis. Lobi stigmatici lati, breves, rotundati, incurvi. Ovarium curvatum, 6-sulcatum, minute muriculatum, 0.85 cm. longum.

Dutch New-Guinea: Nassau-mountains, Exploration-bivouac, 900 m., epiphytcal in secondary forest. (W. M. DOCTERS VAN LEEUWEN n. 10824, October 1926; "flowers yellow, lip lighter").

According to SCHLECHTER's description and sketch this plant deceptively resembles *T. macrotaenium* Schltr. The only difference I could trace consists in the lip which is entire in SCHLECHTER's species, whereas it possesses two small toothlike side-lobes in *T. dentilobum*. For safety I asked Dr. MANSFELD to examine SCHLECHTER's type and he very kindly informed me, that the lip really is quite entire.

Description from herbarium and an inflorescence preserved in alcohol.

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PLATES

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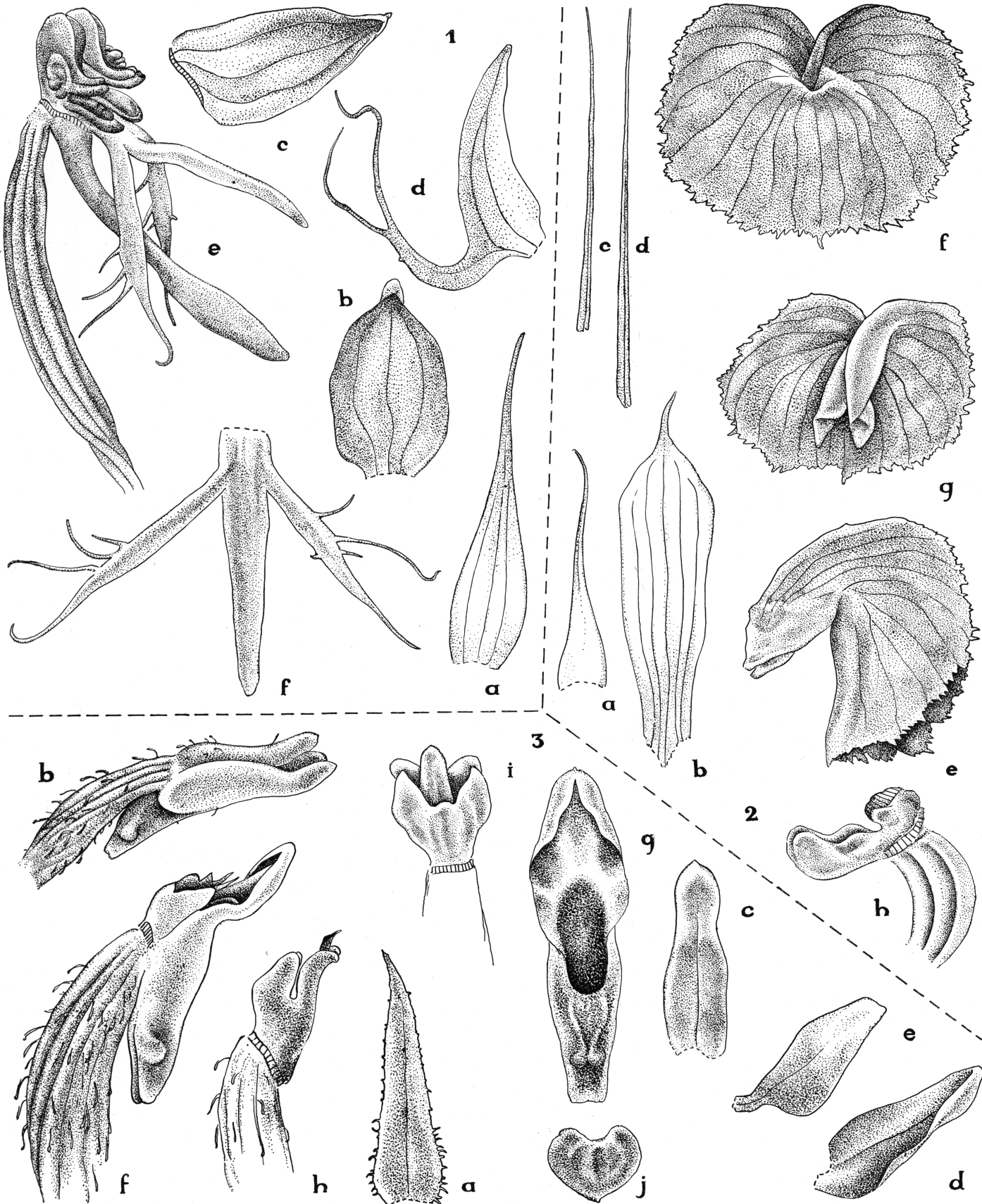
- a.* Bractea.
- b.* Sepalum dorsale.
- c.* Sepalum laterale.
- d.* Petalum.
- e.* Labellum et gynostemium.
- f.* Labellum expansum.

III, 2. **Corybas erythrocarpus** J. J. S.

- a.* Bractea.
- b.* Sepalum dorsale.
- c.* Sepalum laterale.
- d.* Petalum.
- e.* Labellum expansum supra visum.
- f.* Idem, dorso visum.
- g.* Idem, longitudinaliter conduplicatum.
- h.* Gynostemium.

III, 3. **Vrydagzynea albostrata** Schltr.

- a.* Bractea.
- b.* Flos.
- c.* Sepalum dorsale.
- d.* Sepalum laterale.
- e.* Petalum.
- f.* Labellum et gynostemium.
- g.* Labellum.
- h, i.* Gynostemia.
- j.* Anthera.



IV, 4. **Corymborchis tropidiifolia** J. J. S.

- a.* Bractea.
- b.* Sepalum dorsale.
- c.* Sepalum laterale.
- d.* Petalum.
- e.* Labellum expansum.
- f.* Gynostemium.
- g.* Apex gynostemii dorso visus.
- h.* Anthera.

IV, 5. **Plocoglottis lacuum** J. J. S.

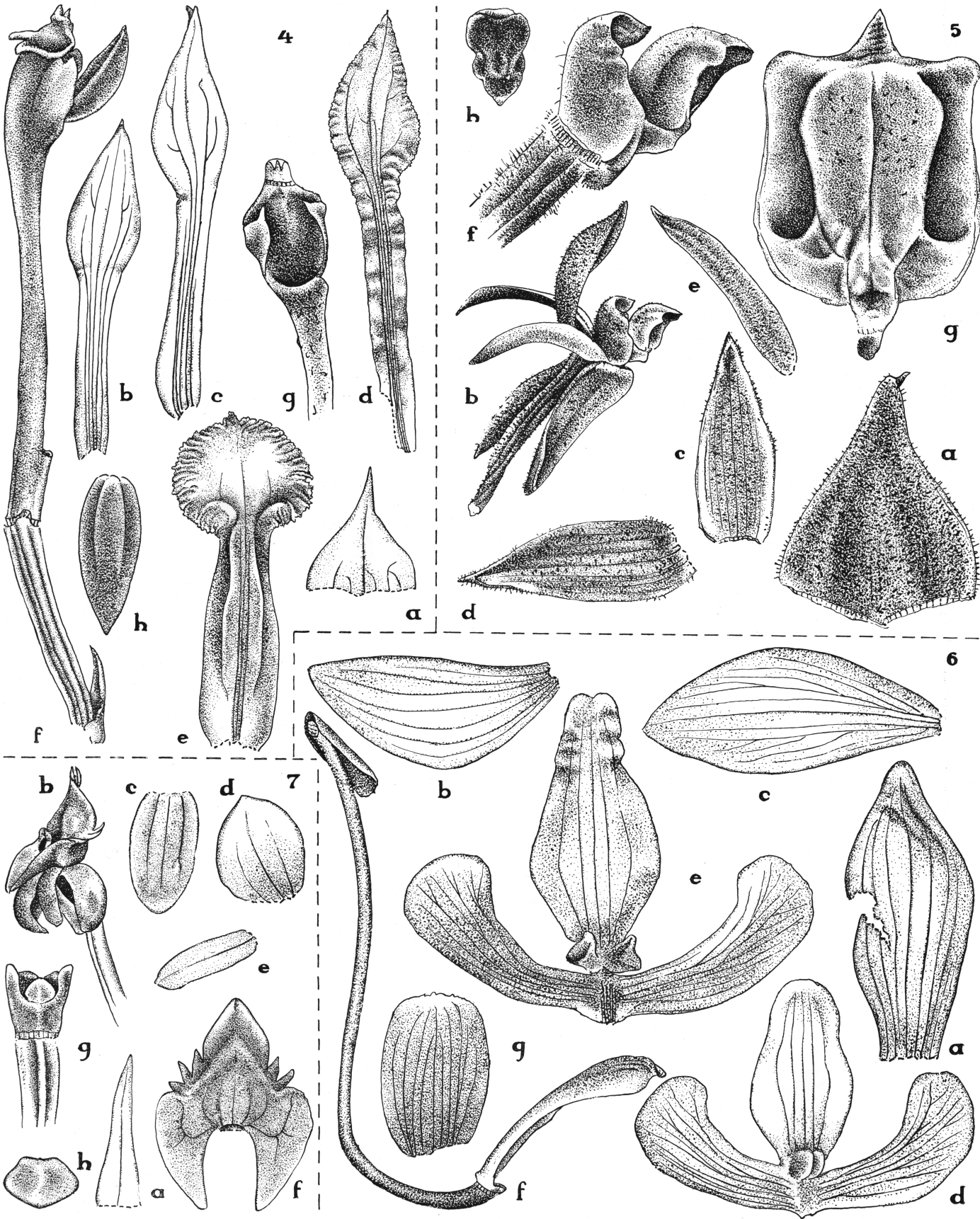
- a.* Bractea.
- b.* Flos.
- c.* Sepalum dorsale.
- d.* Sepalum laterale.
- e.* Petalum.
- f.* Labellum et gynostemium.
- g.* Labellum expansum.
- h.* Anthera.

IV, 6. **Spathoglottis Doctersii** J. J. S.

- a.* Sepalum dorsale.
- b.* Sepalum laterale.
- c.* Petalum.
- d.* Labellum.
- e.* Labellum (var. emarginata J. J. S.).
- f.* Gynostemium (idem).
- g.* Bractea (idem).

IV, 7. **Microstylis protracta** J. J. S.

- a.* Bractea.
- b.* Flos.
- c.* Sepalum dorsale.
- d.* Sepalum laterale.
- e.* Petalum.
- f.* Labellum expansum.
- g.* Gynostemium.
- h.* Anthera.



V, 8. **Microstylis verruculosa** J. J. S.

- a. Flos.
- b. Sepalum dorsale.
- c. Sepalum laterale.
- d. Petalum.
- e. Labellum.
- f. Anthera.
- g. Pollinarium.

V, 9. **Oberonia reversidens** J. J. S.

- a. Bractea.
- b. Flos.
- c. Sepalum dorsale.
- d. Petalum.
- e. Labellum.
- f. Idem, a latere visum.
- g. Anthera.

V, 10. **Oberonia fallax** J. J. S.

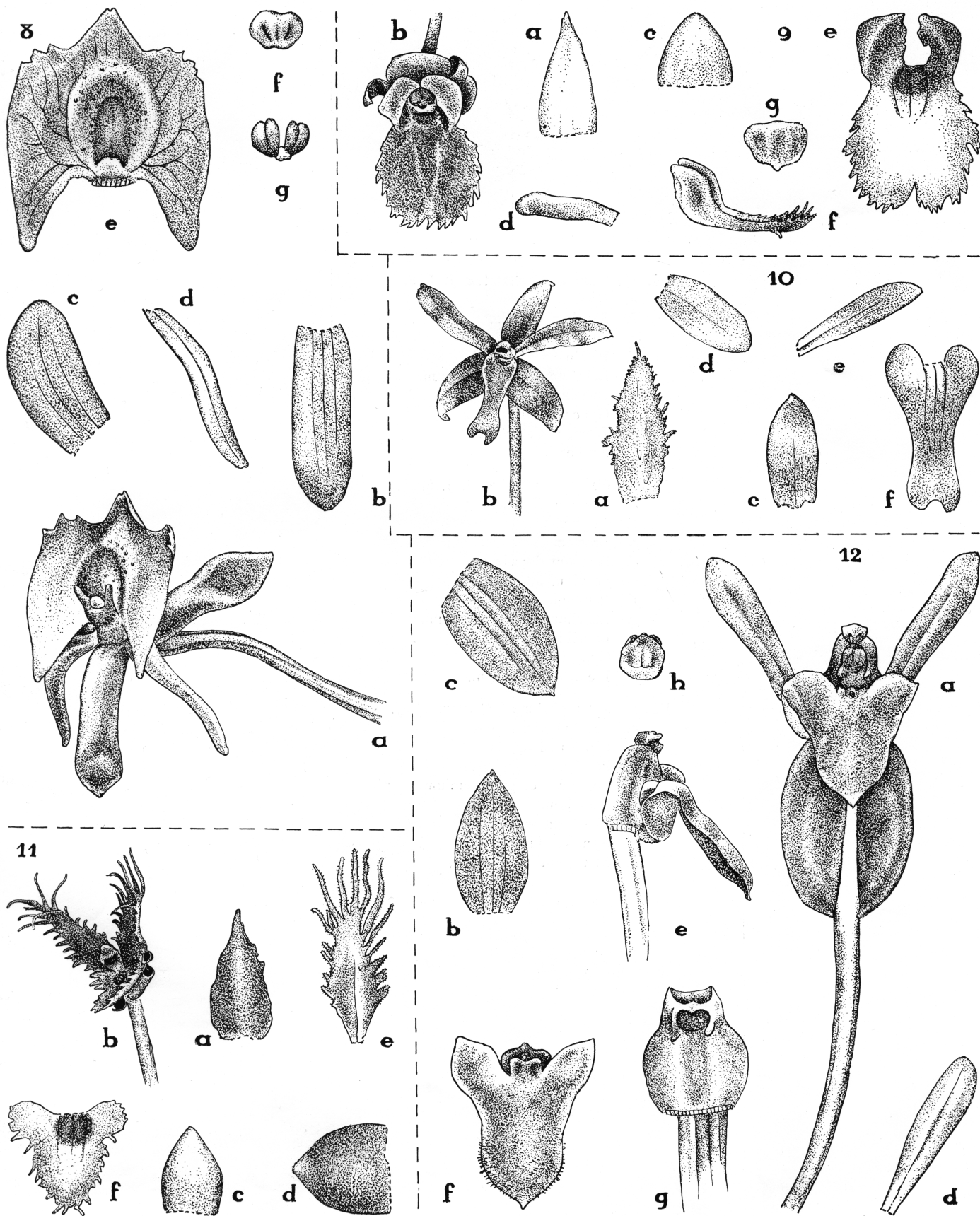
- a. Bractea.
- b. Flos.
- c. Sepalum dorsale.
- d. Sepalum laterale.
- e. Petalum.
- f. Labellum.

V, 11. **Oberonia plumea** J. J. S.

- a. Bractea.
- b. Flos.
- c. Sepalum dorsale.
- d. Sepalum laterale.
- e. Petalum.
- f. Labellum.

V, 12. **Liparis arrigens** J. J. S.

- a. Flos.
- b. Sepalum dorsale.
- c. Sepalum laterale.
- d. Petalum.
- e. Labellum et gynostemium.
- f. Labellum expansum.
- g. Gynostemium antice visum.
- h. Anthera.



VI, 13. **Glomera retusimentum** J. J. S.

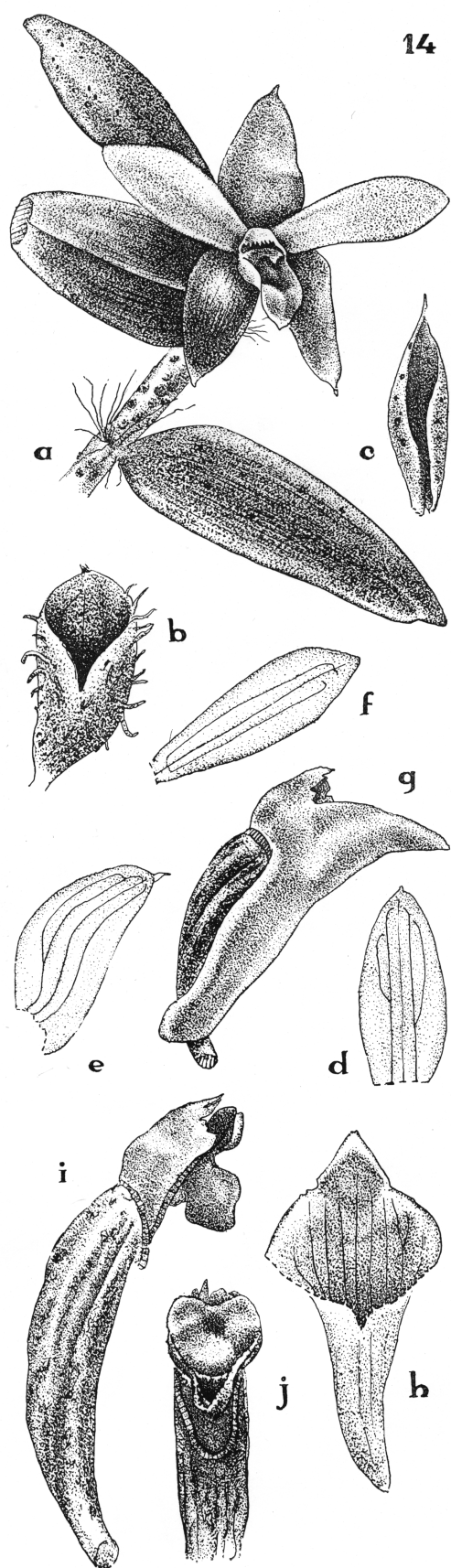
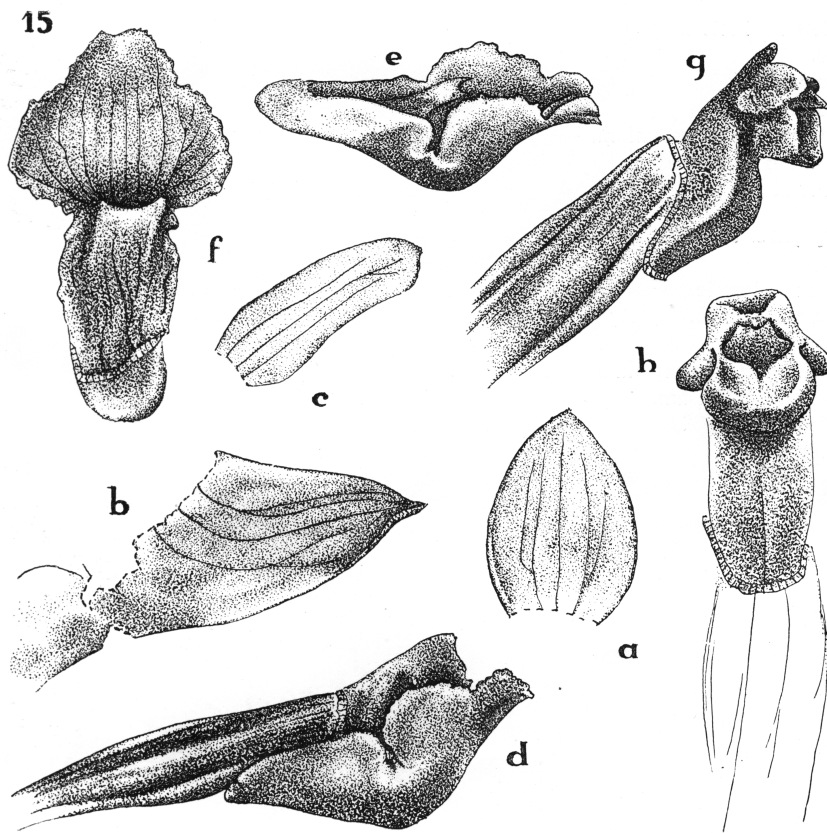
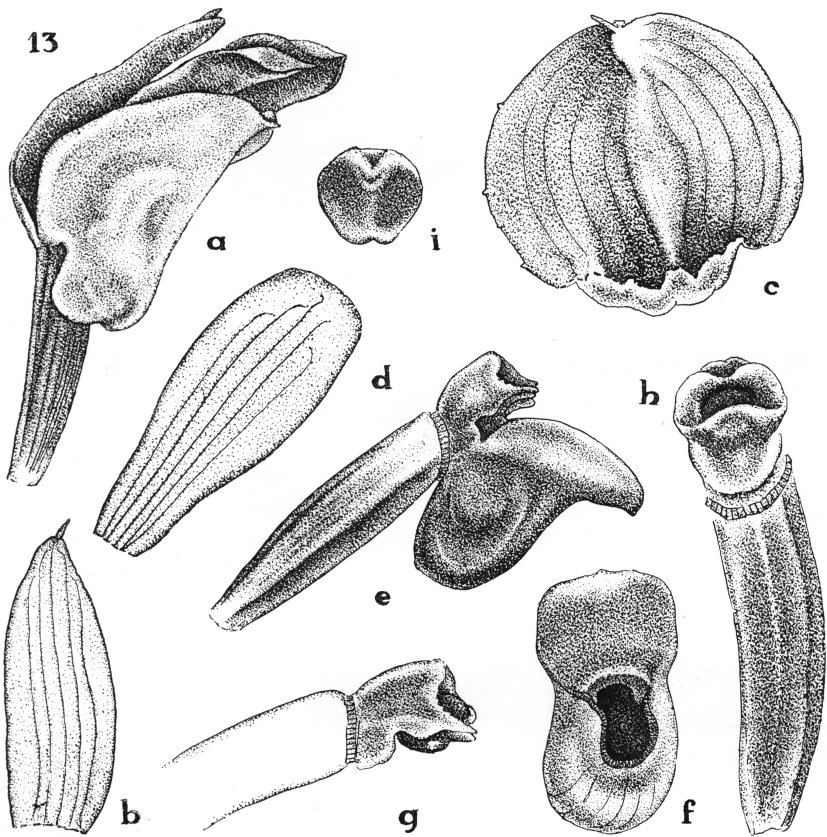
- a.* Flos.
- b.* Sepalum dorsale.
- c.* Sepala lateralialia.
- d.* Petalum.
- e.* Labellum et gynostemium.
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- g.* Gynostemium.
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- i.* Anthera.

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- e.* Sepalum laterale.
- f.* Petalum.
- g.* Labellum et gynostemium.
- h.* Labellum expansum.
- i.* Gynostemium.
- j.* Idem, antice visum.

VI, 15. **Agrostophyllum ventricosum** J. J. S.

- a.* Sepalum dorsale.
- b.* Sepalum laterale.
- c.* Petalum.
- d.* Labellum et gynostemium.
- e.* Labellum.
- f.* Idem, expansum.
- g.* Gynostemium.
- h.* Idem, antice visum.



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- b.* Flos.
- c.* Idem, antice visus.
- d.* Sepalum dorsale.
- e.* Sepalum laterale.
- f.* Petalum.
- g.* Labellum et gynostemium.
- h.* Labellum expansum.
- i.* Gynostemium.
- j.* Anthera.

VII, 17. **Ceratostylis macra** J. J. S.

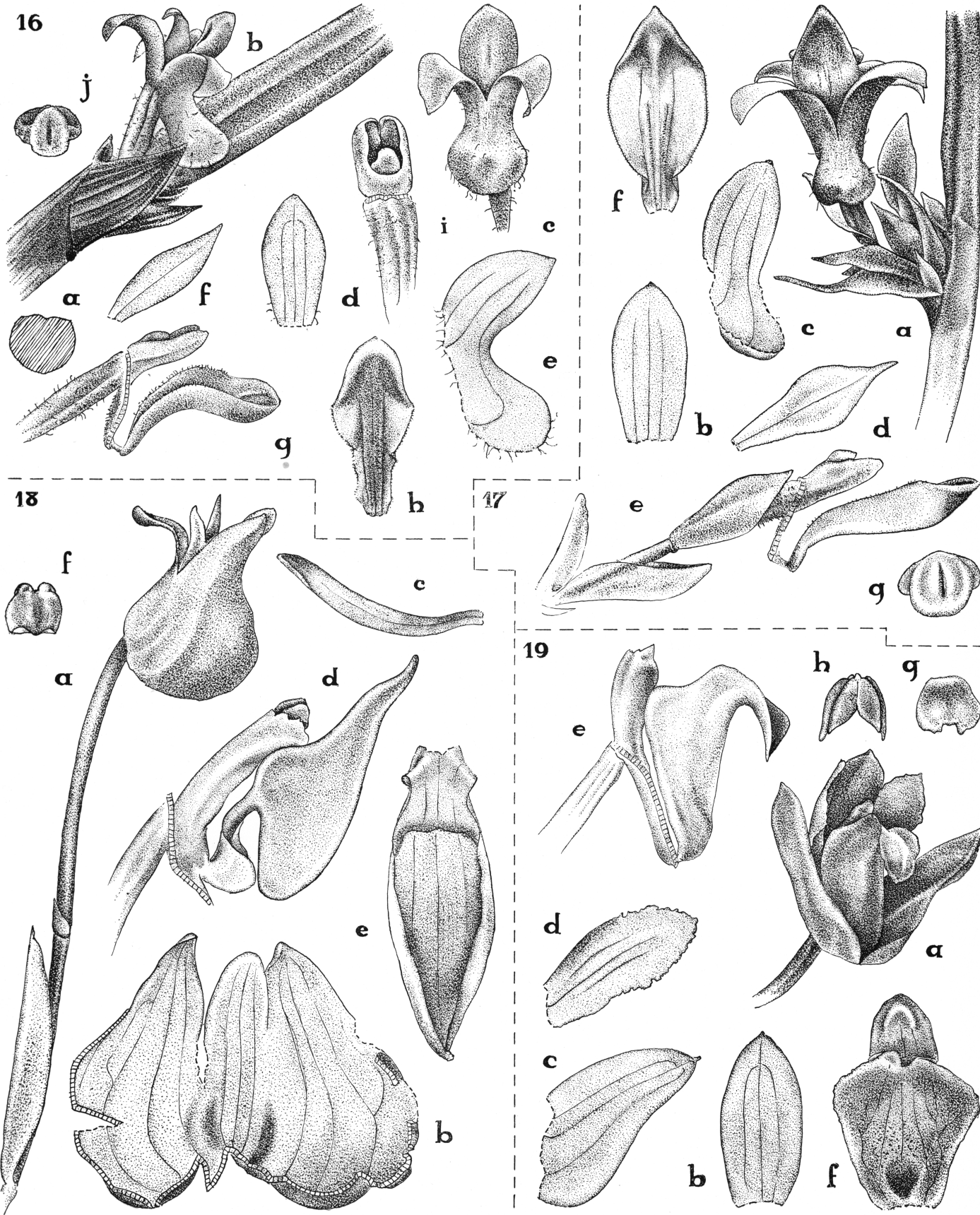
- a.* Flos.
- b.* Sepalum dorsale.
- c.* Sepalum laterale.
- d.* Petalum.
- e.* Labellum et gynostemium.
- f.* Labellum expansum.
- g.* Anthera.

VII, 18. **Mediocalcar Doctersii** J. J. S.

- a.* Flos.
- b.* Sepala.
- c.* Petalum.
- d.* Labellum et gynostemium.
- e.* Labellum supra visum.
- f.* Anthera.

VII, 19. **Poaephyllum trilobum** J. J. S.

- a.* Flos.
- b.* Sepalum dorsale.
- c.* Sepalum laterale.
- d.* Petalum.
- e.* Labellum et gynostemium.
- f.* Labellum expansum.
- g.* Anthera.
- h.* Pollinia.



VIII, 20. **Dendrobium ledifolium** J. J. S.

- a.* Sepalum dorsale.
- b.* Sepalum laterale.
- c.* Petalum.
- d.* Labellum expansum.
- e.* Gynostemium.
- f.* Idem, antice visum.
- g.* Anthera.
- h.* Pollinia.

VIII, 21. **Dendrobium connex costatum** J. J. S.

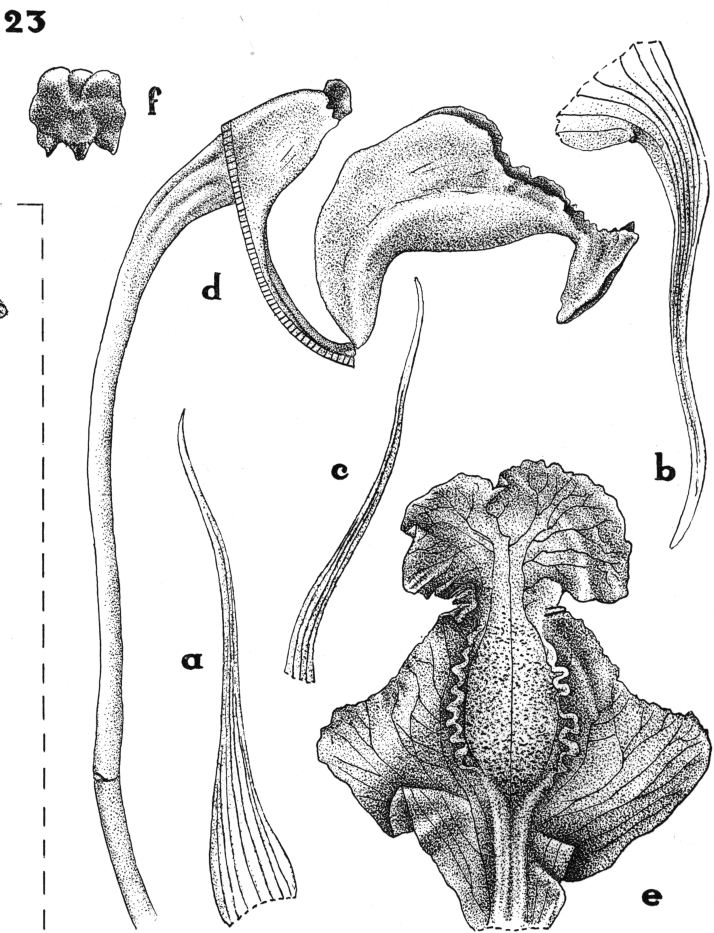
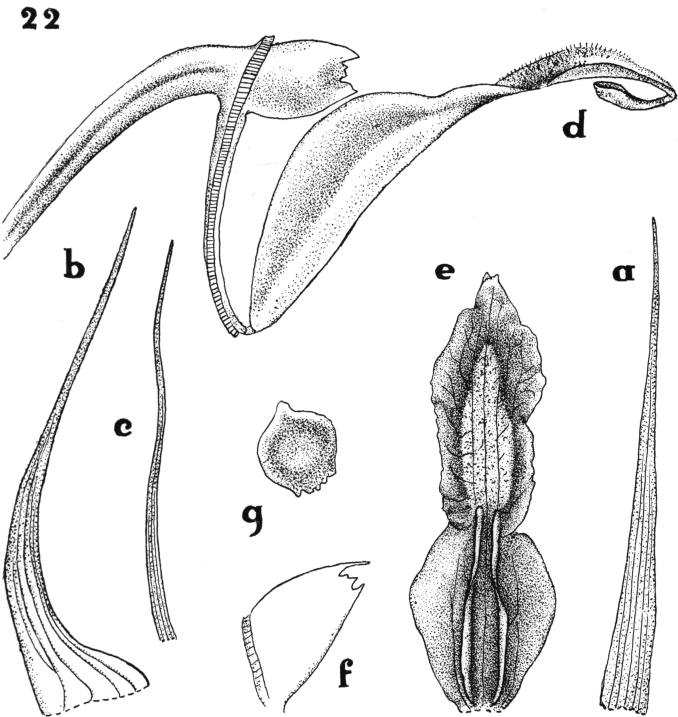
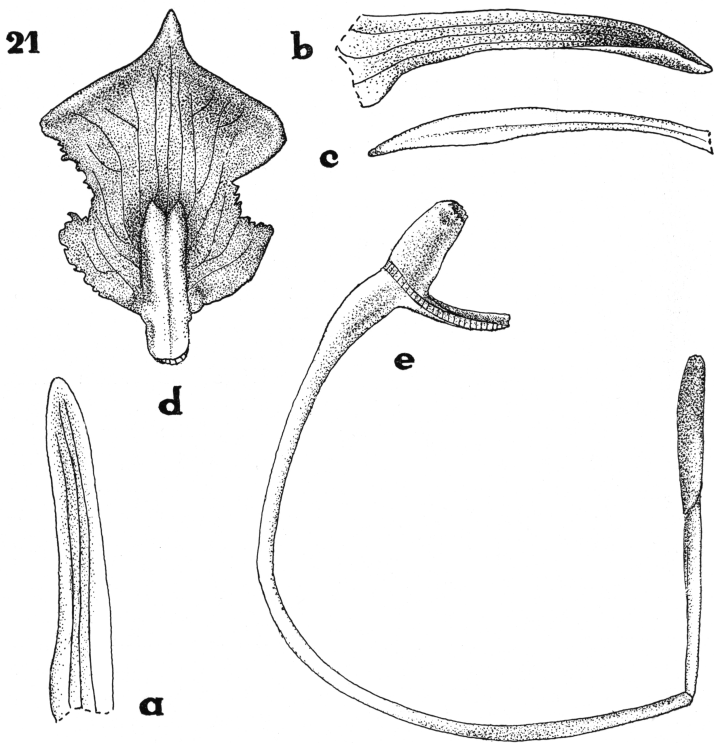
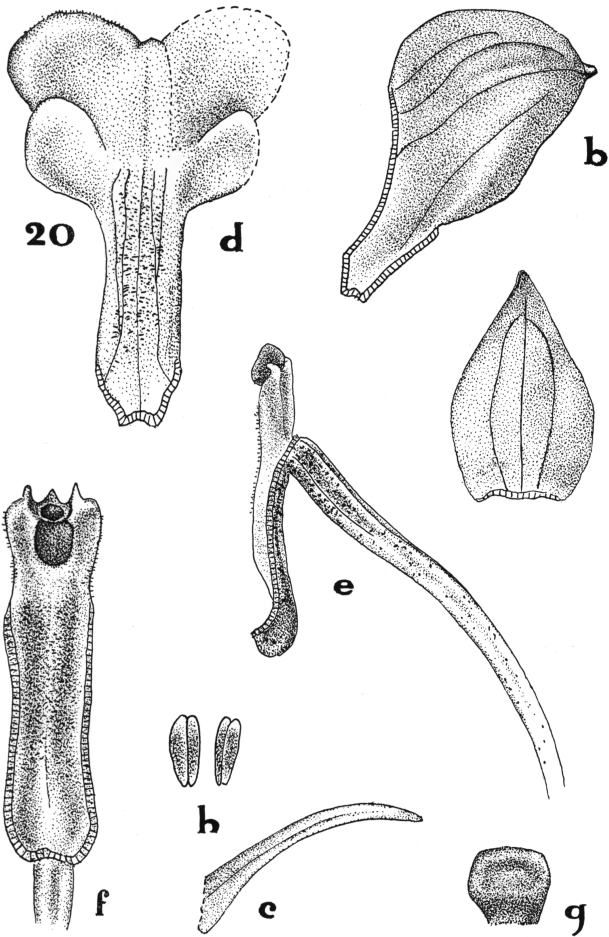
- a.* Sepalum dorsale.
- b.* Sepalum laterale.
- c.* Petalum.
- d.* Labellum expansum.
- e.* Gynostemium.

VIII, 22. **Dendrobium Vanleeuwenii** J. J. S.

- a.* Sepalum dorsale.
- b.* Sepalum laterale.
- c.* Petalum.
- d.* Labellum et gynostemium.
- e.* Labellum expansum.
- f.* Gynostemium.
- g.* Anthera.

VIII, 23. **Dendrobium isthmiferum** J. J. S.

- a.* Sepalum dorsale.
- b.* Sepalum laterale.
- c.* Petalum.
- d.* Labellum et gynostemium.
- e.* Labellum expansum.
- f.* Anthera.



VIII, 20. **Dendrobium ledifolium** J. J. S.

- a.* Sepalum dorsale.
- b.* Sepalum laterale.
- c.* Petalum.
- d.* Labellum expansum.
- e.* Gynostemium.
- f.* Idem, antice visum.
- g.* Anthera.
- h.* Pollinia.

VIII, 21. **Dendrobium connex costatum** J. J. S.

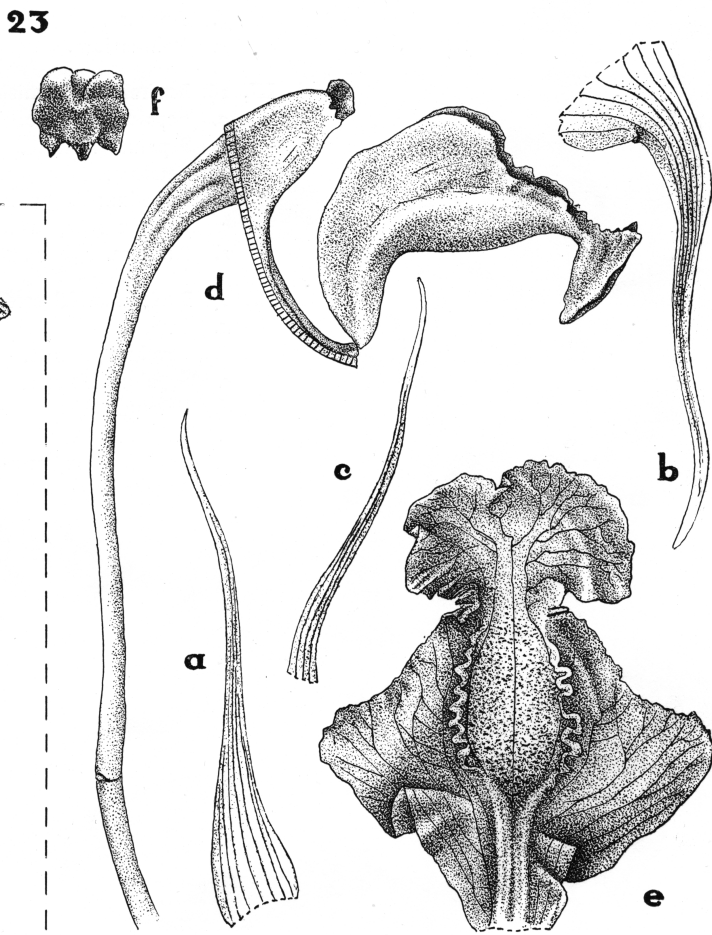
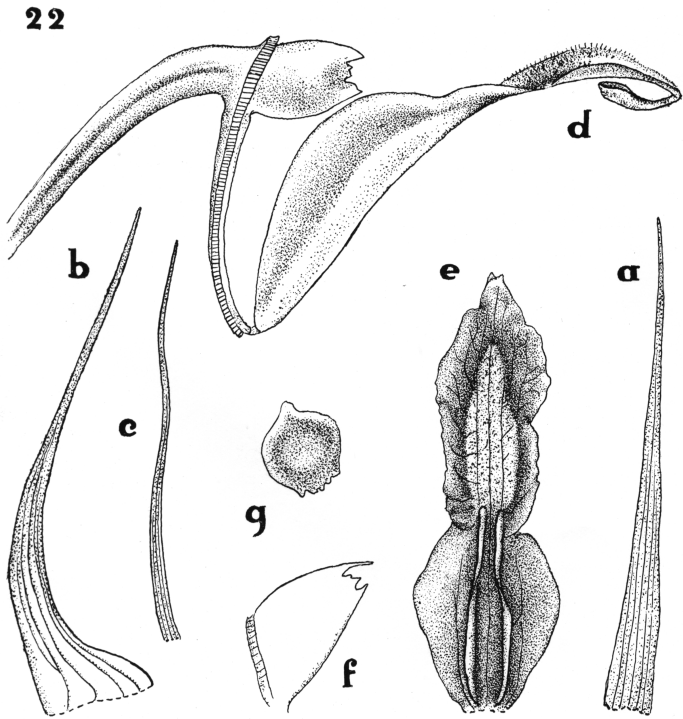
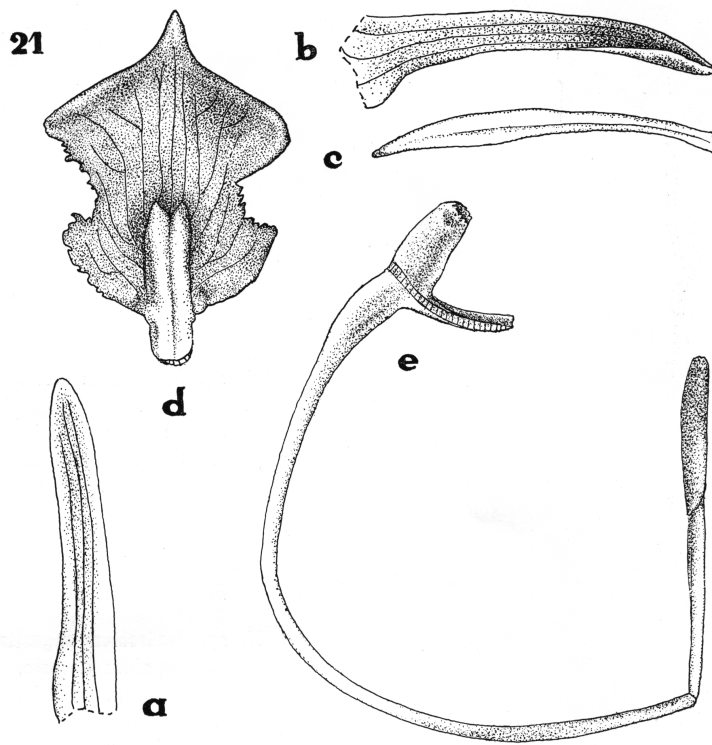
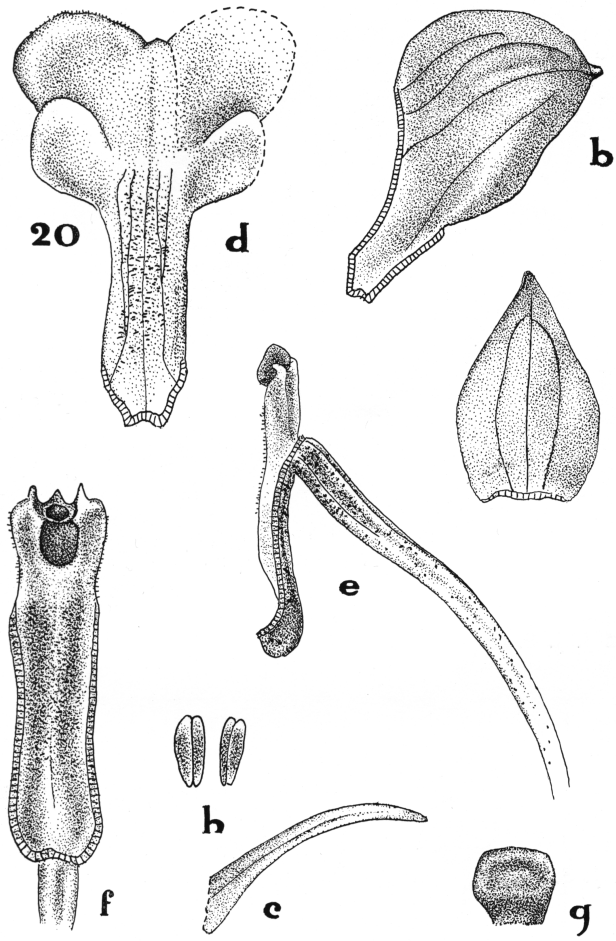
- a.* Sepalum dorsale.
- b.* Sepalum laterale.
- c.* Petalum.
- d.* Labellum expansum.
- e.* Gynostemium.

VIII, 22. **Dendrobium Vanleeuwenii** J. J. S.

- a.* Sepalum dorsale.
- b.* Sepalum laterale.
- c.* Petalum.
- d.* Labellum et gynostemium.
- e.* Labellum expansum.
- f.* Gynostemium.
- g.* Anthera.

VIII, 23. **Dendrobium isthmiferum** J. J. S.

- a.* Sepalum dorsale.
- b.* Sepalum laterale.
- c.* Petalum.
- d.* Labellum et gynostemium.
- e.* Labellum expansum.
- f.* Anthera.



IX, 24. **Dendrobium aridum** J. J. S.

- a.* Flos.
- b.* Sepalum dorsale.
- c.* Sepalum laterale.
- d.* Petalum.
- e.* Labellum et gynostemium.
- f.* Labellum expansum.
- g.* Anthera.
- h.* Pollinarium.

IX, 25. **Dendrobium angustispathum** J. J. S.

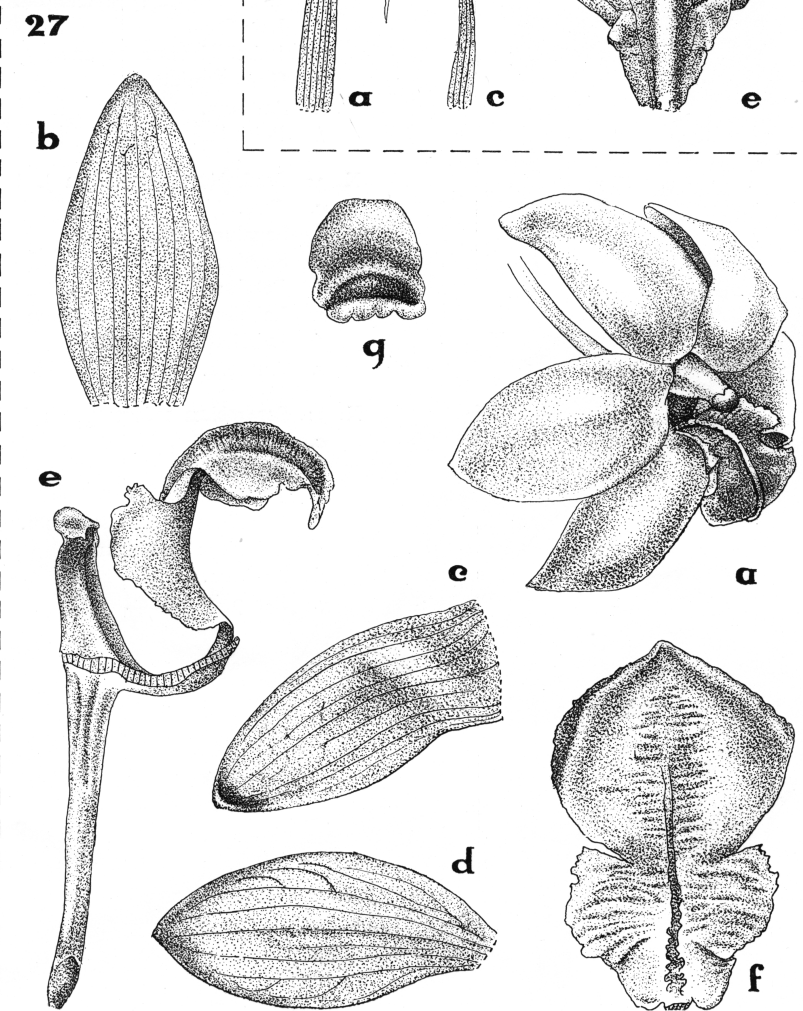
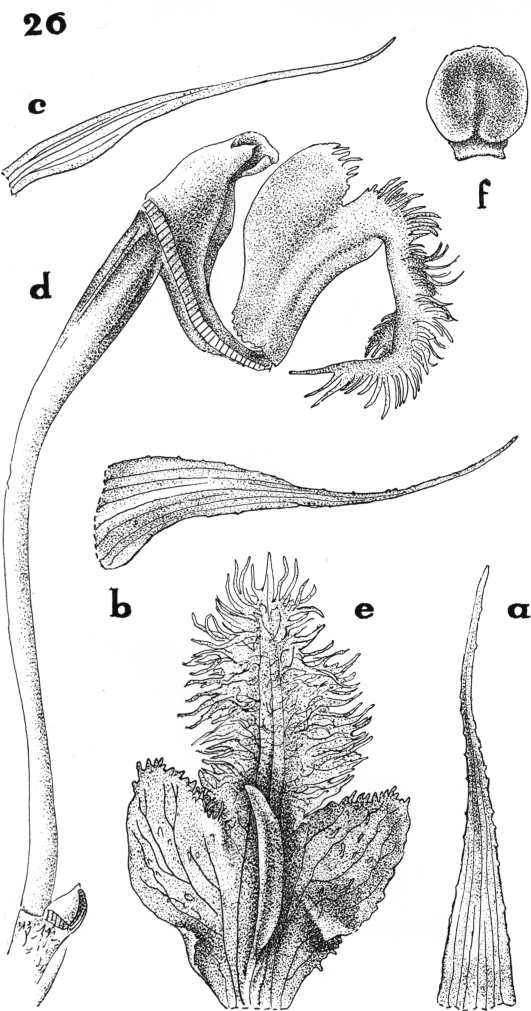
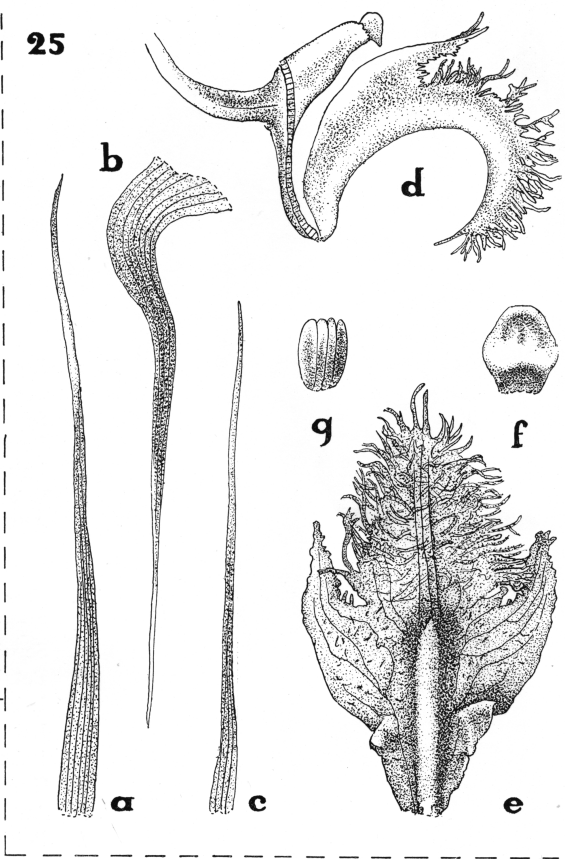
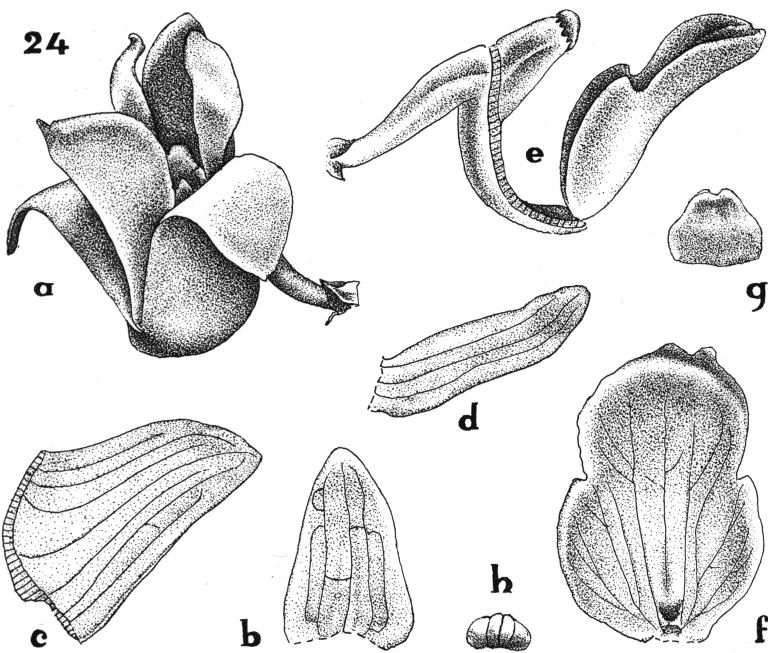
- a.* Sepalum dorsale.
- b.* Sepalum laterale.
- c.* Petalum.
- d.* Labellum et gynostemium.
- e.* Labellum expansum.
- f.* Anthera.
- g.* Pollinarium.

IX, 26. **Dendrobium plumilobum** J. J. S.

- a.* Sepalum dorsale.
- b.* Sepalum laterale.
- c.* Petalum.
- d.* Labellum et gynostemium.
- e.* Labellum expansum.
- f.* Anthera.

IX, 27. **Dendrobium fulgens** J. J. S.

- a.* Flos.
- b.* Sepalum dorsale.
- c.* Sepalum laterale.
- d.* Petalum.
- e.* Labellum et gynostemium.
- f.* Labellum expansum.
- g.* Anthera.



X, 28. **Dendrobium salicifolium** J. J. S.

- a.* Sepalum dorsale.
- b.* Sepalum laterale.
- c.* Petalum.
- d.* Labellum et gynostemium.
- e.* Labellum expansum.
- f.* Anthera.

X, 29. **Dendrobium allioides** J. J. S.

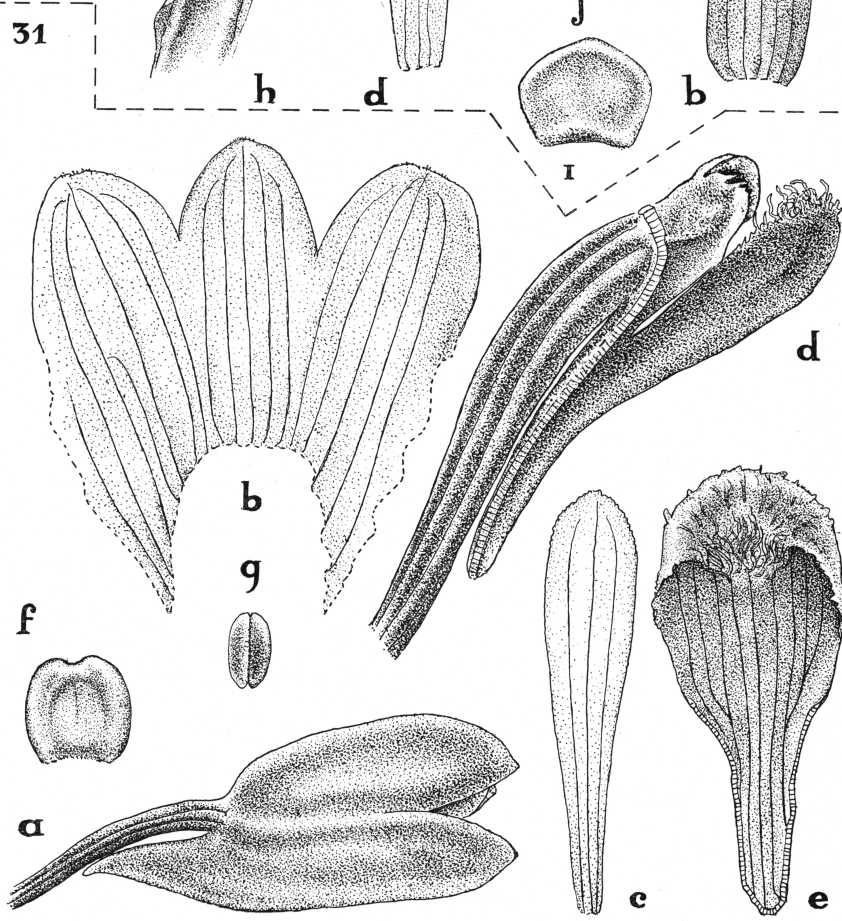
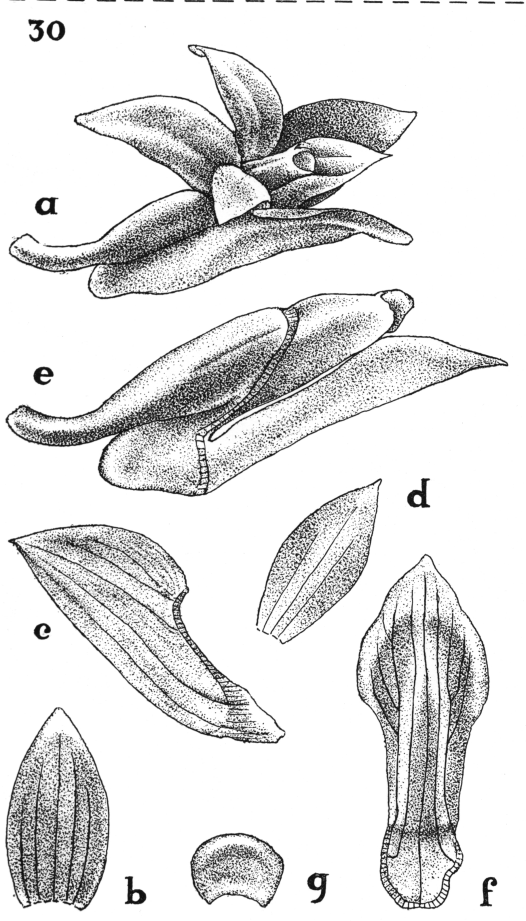
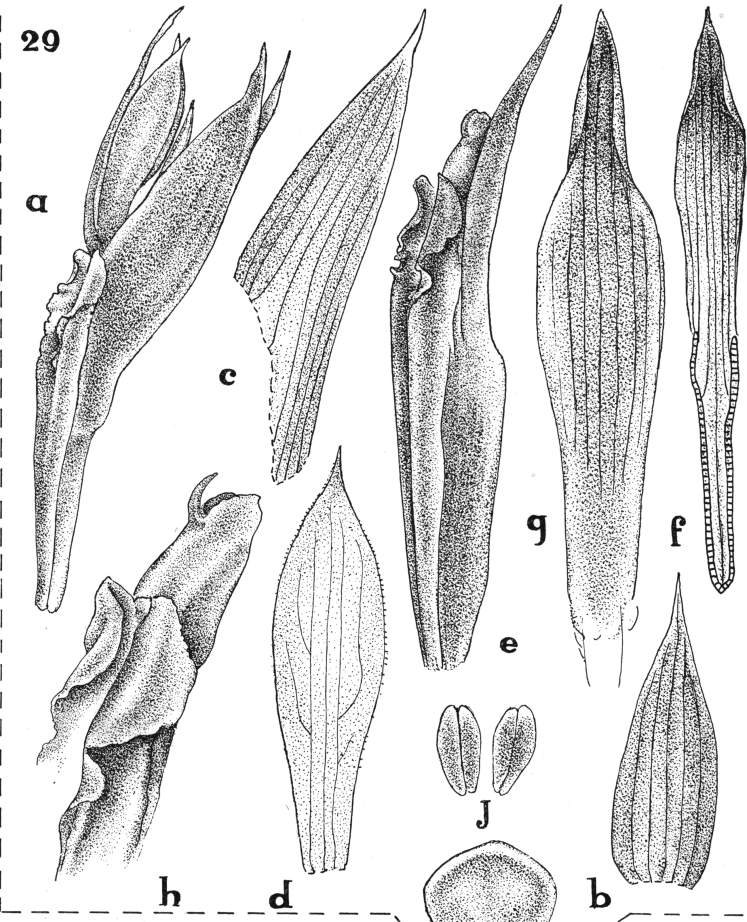
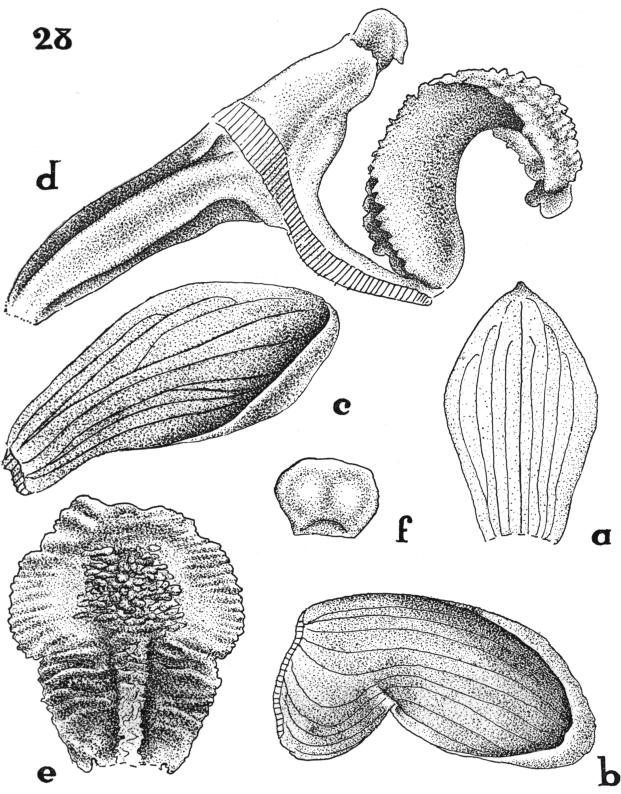
- a.* Flos.
- b.* Sepalum dorsale.
- c.* Sepalum laterale.
- d.* Petalum.
- e.* Labellum et gynostemium.
- f.* Labellum.
- g.* Labelli lamina expansa.
- h.* Gynostemium.
- i.* Anthera.
- j.* Pollinia.

X, 30. **Dendrobium macrifolium** J. J. S.

- a.* Flos.
- b.* Sepalum dorsale.
- c.* Sepalum laterale.
- d.* Petalum.
- e.* Labellum et gynostemium.
- f.* Labellum expansum.
- g.* Anthera.

X, 31. **Dendrobium codonosepalum** J. J. S.

- a.* Flos.
- b.* Sepala.
- c.* Petalum.
- d.* Labellum et gynostemium.
- e.* Labellum expansum.
- f.* Anthera.
- g.* Par polliniorum.



XI, 32. **Dendrobium paspalifolium** J. J. S.

- a.* Flos.
- b.* Sepalum dorsale.
- c.* Sepalum laterale.
- d.* Petalum.
- e.* Labellum et gynostemium.
- f.* Labellum expansum.

XI, 33. **Dendrobium vacciniifolium** J. J. S.

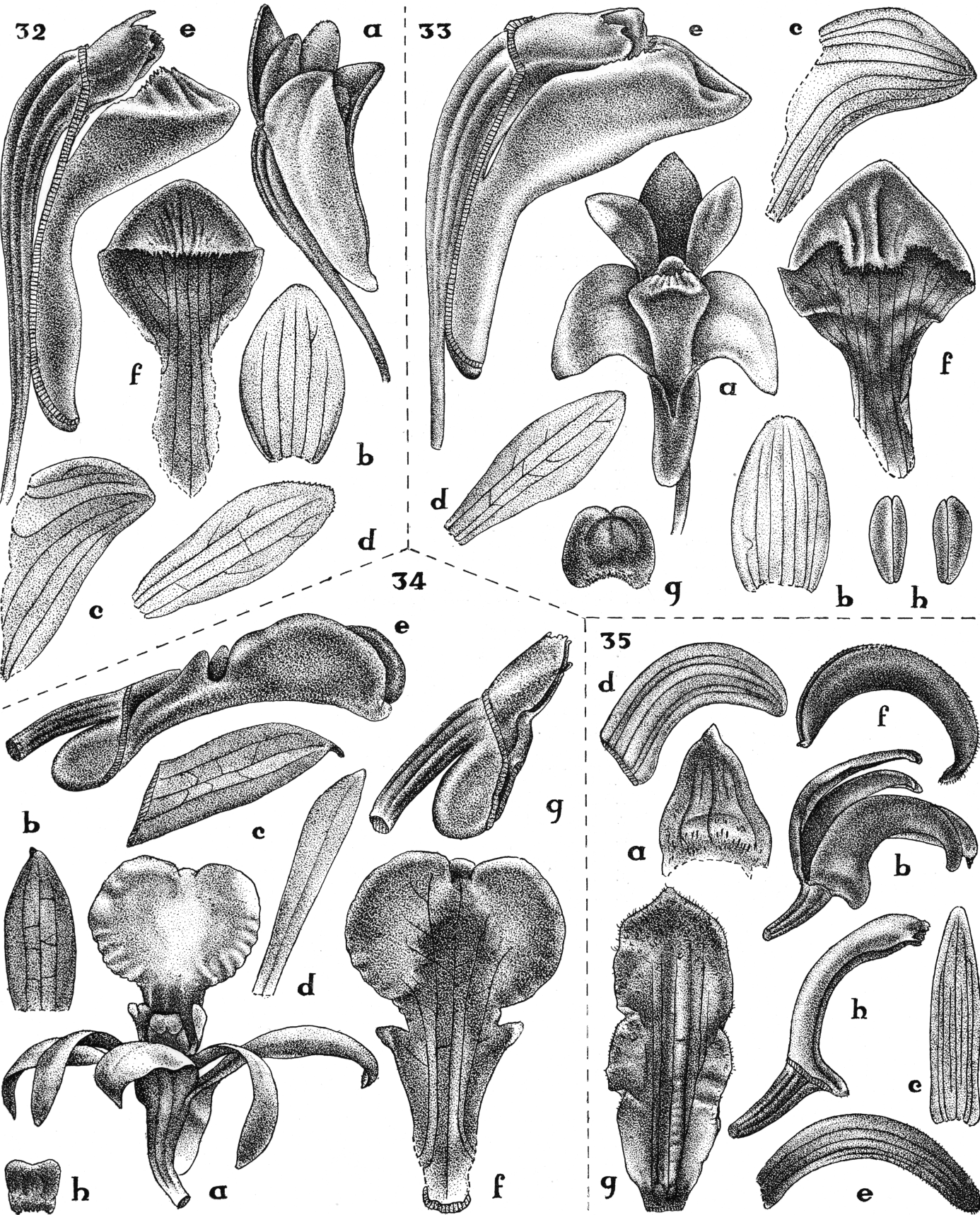
- a.* Flos.
- b.* Sepalum dorsale.
- c.* Sepalum laterale.
- d.* Petalum.
- e.* Labellum et gynostemium.
- f.* Labellum expansum.
- g.* Anthera.
- h.* Pollinia.

XI, 34. **Dendrobium cadetiiflorum** J. J. S.

- a.* Flos.
- b.* Sepalum dorsale.
- c.* Sepalum laterale.
- d.* Petalum.
- e.* Labellum et gynostemium.
- f.* Labellum expansum.
- g.* Gynostemium.
- h.* Anthera.

XI, 35. **Pseuderia sympodialis** J. J. S.

- a.* Bractea.
- b.* Flos.
- c.* Sepalum dorsale.
- d.* Sepalum laterale.
- e.* Petalum.
- f.* Labellum.
- g.* Idem, expansum.



XII, 36. **Bulbophyllum inclinatum** J. J. S.

- a.* Flos.
- b.* Sepalum dorsale.
- c.* Sepalum laterale.
- d.* Petalum.
- e.* Labellum et gynostemium.
- f.* Labellum expansum.
- g.* Anthera.

XII, 37. **Bulbophyllum trinervium** J. J. S.

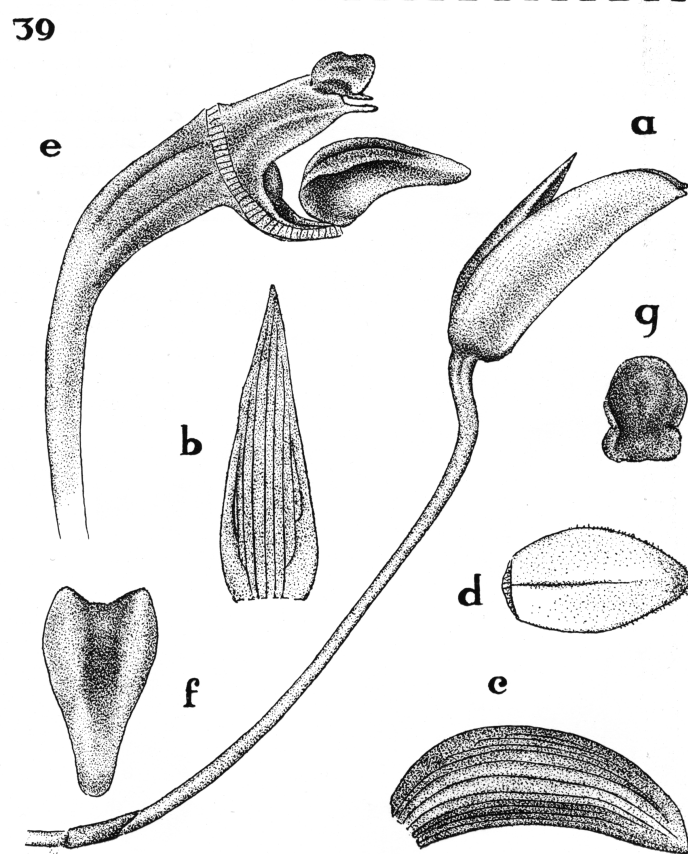
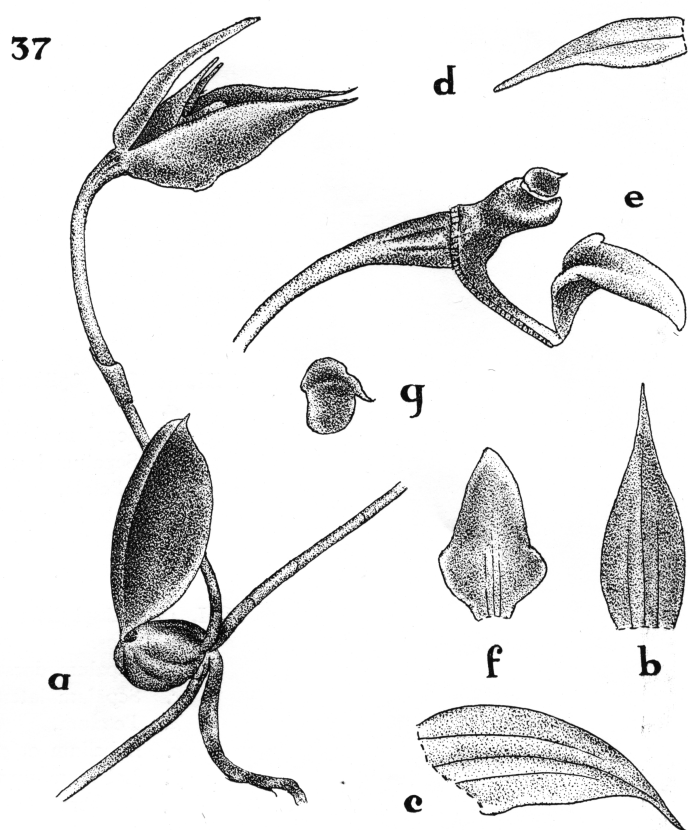
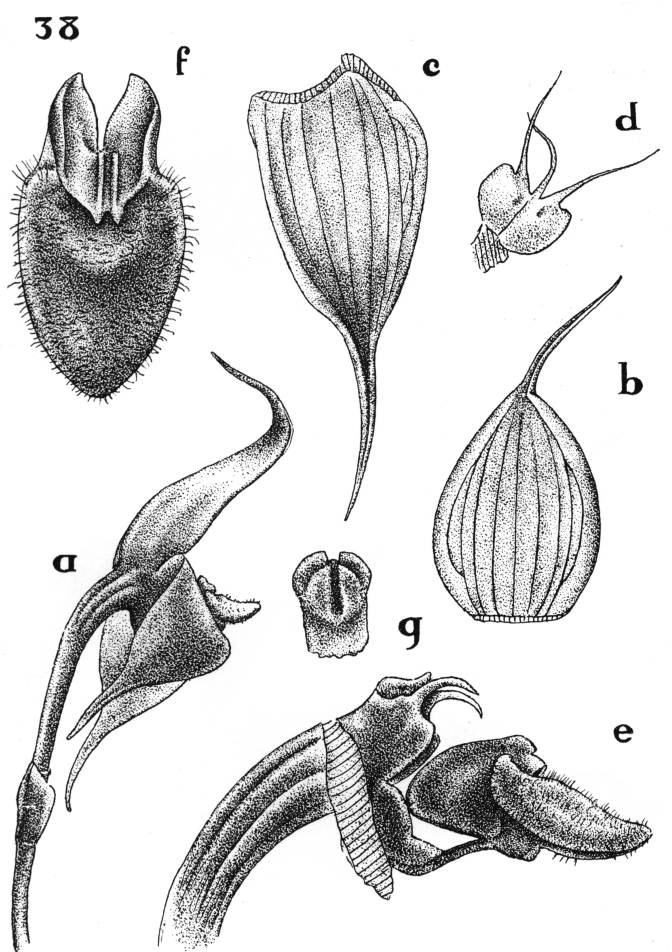
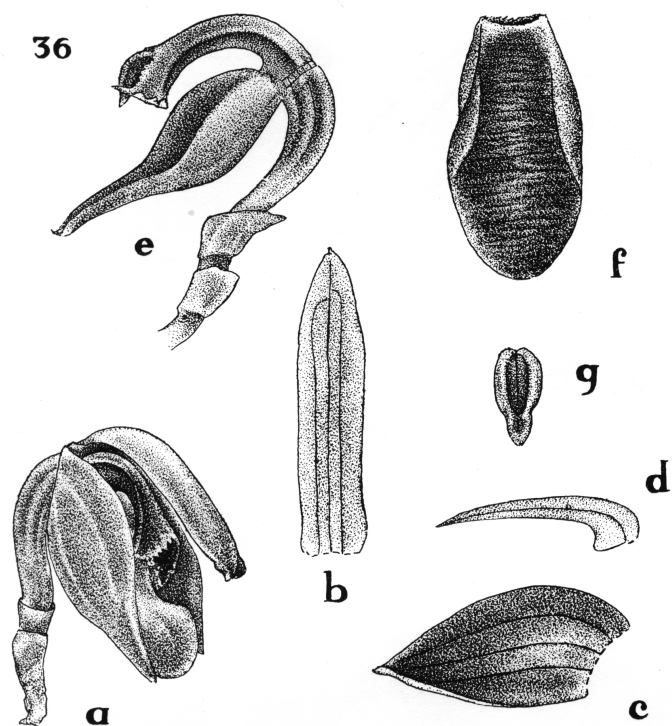
- a.* Planta florens.
- b.* Sepalum dorsale.
- c.* Sepalum laterale.
- d.* Petalum.
- e.* Labellum et gynostemium.
- f.* Labellum expansum.
- g.* Anthera.

XII, 38. **Bulbophyllum trigonidioides** J. J. S.

- a.* Flos
- b.* Sepalum dorsale.
- c.* Sepalum laterale.
- d.* Petalum.
- e.* Labellum et gynostemium.
- f.* Labellum expansum.
- g.* Anthera.

XII, 39. **Bulbophyllum ellipticifolium** J. J. S.

- a.* Flos.
- b.* Sepalum dorsale.
- c.* Sepalum laterale.
- d.* Petalum.
- e.* Labellum et gynostemium.
- f.* Labellum supra visum.
- g.* Anthera.



XIII, 40. **Bulbophyllum perforans** J. J. S.

- a.* Flos.
- b.* Sepalum dorsale.
- c.* Sepalum laterale.
- d, e.* Petala.
- f.* Labellum et gynostemium.
- g.* Labellum expansum.
- h.* Anthera.

XIII, 41. **Bulbophyllum rugulosum** J. J. S.

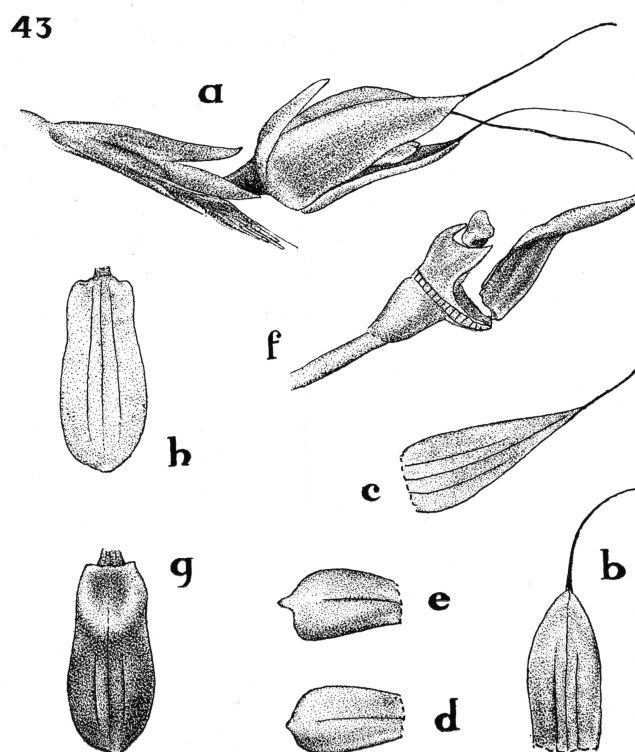
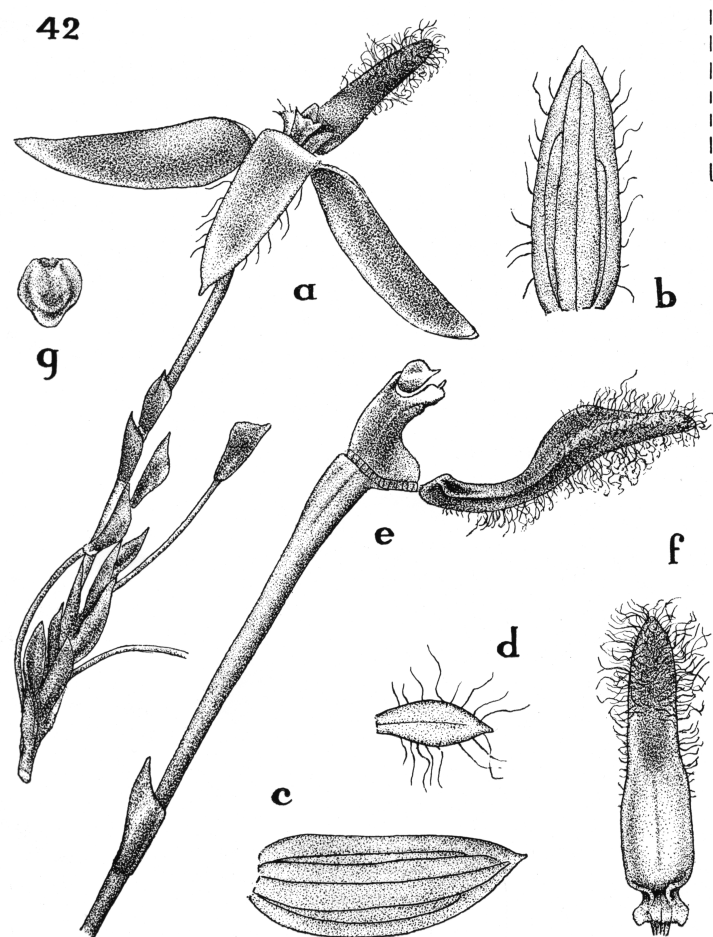
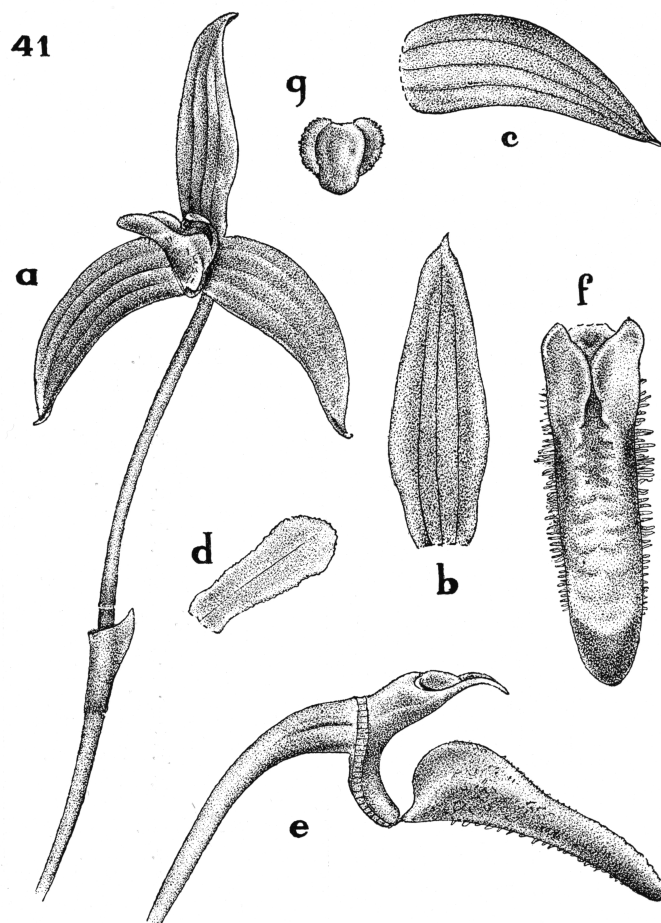
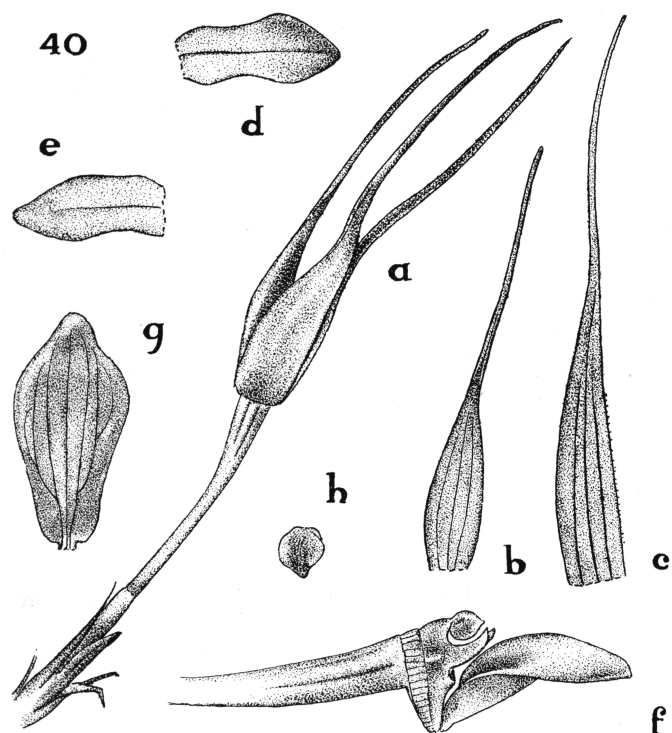
- a.* Flos.
- b.* Sepalum dorsale.
- c.* Sepalum laterale.
- d.* Petalum.
- e.* Labellum et gynostemium.
- f.* Labellum supra visum.
- g.* Anthera.

XIII, 42. **Bulbophyllum bambusifolium** J. J. S.

- a.* Inflorescentia.
- b.* Sepalum dorsale.
- c.* Sepalum laterale.
- d.* Petalum.
- e.* Labellum et gynostemium.
- f.* Labellum supra visum.
- g.* Anthera.

XIII, 43. **Bulbophyllum pseudofilicaule** J. J. S.

- a.* Flos.
- b.* Sepalum dorsale.
- c.* Sepalum laterale.
- d, e.* Petala.
- f.* Labellum et gynostemium.
- g.* Labellum.
- h.* Idem, expansum.



XIV, 44. **Bulbophyllum latipes** J. J. S.

- a.* Flos.
- b.* Sepalum dorsale.
- c.* Sepalum laterale.
- d.* Petalum.
- e.* Labellum.
- f.* Idem, expansum.
- g.* Gynostemium.
- h.* Anthera.

XIV, 45. **Bulbophyllum recurvmarginatum** J. J. S.

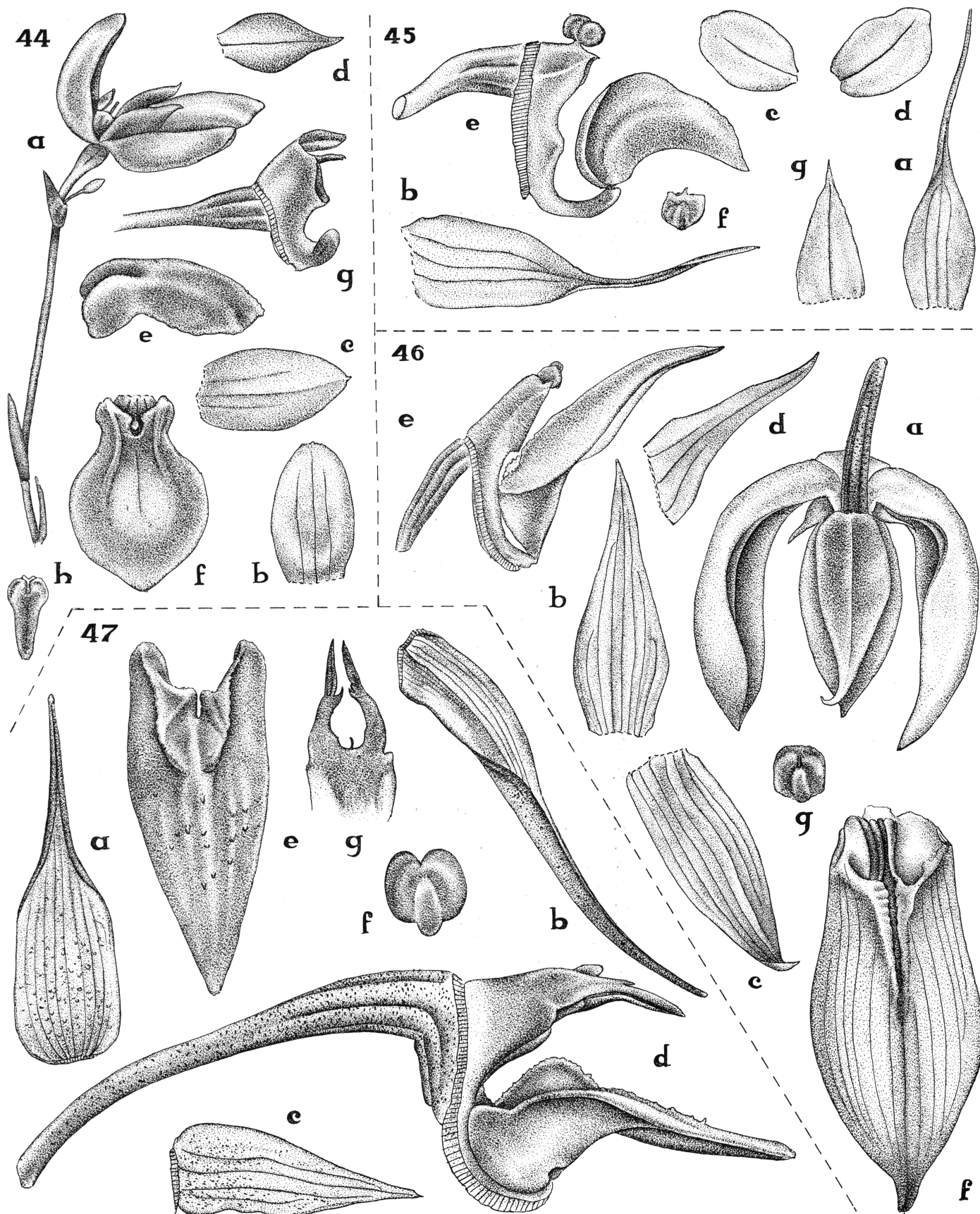
- a.* Sepalum dorsale.
- b.* Sepalum laterale.
- c, d.* Petala.
- e.* Labellum et gynostemium.
- f.* Anthera.
- g.* Bractea.

XIV, 46. **Bulbophyllum ligulifolium** J. J. S.

- a.* Flos.
- b.* Sepalum dorsale.
- c.* Sepalum laterale.
- d.* Petalum.
- e.* Labellum et gynostemium.
- f.* Labellum expansum.
- g.* Anthera.

XIV, 47. **Bulbophyllum exasperatum** Schltr.

- a.* Sepalum dorsale.
- b.* Sepalum laterale.
- c.* Petalum.
- d.* Labellum et gynostemium.
- e.* Labellum supra visum.
- f.* Anthera.
- g.* Apex gynostemii.



XV, 48. **Chamaeanthus carinatus** J. J. S.

- a.* Bractea.
- b.* Flos.
- c.* Sepala et petala.
- d.* Labellum et gynostemium.
- e.* Anthera.
- f.* Stipes cum glandula.
- g.* Pollinia.

XV, 49. **Saccolabiopsis papuana** J. J. S.

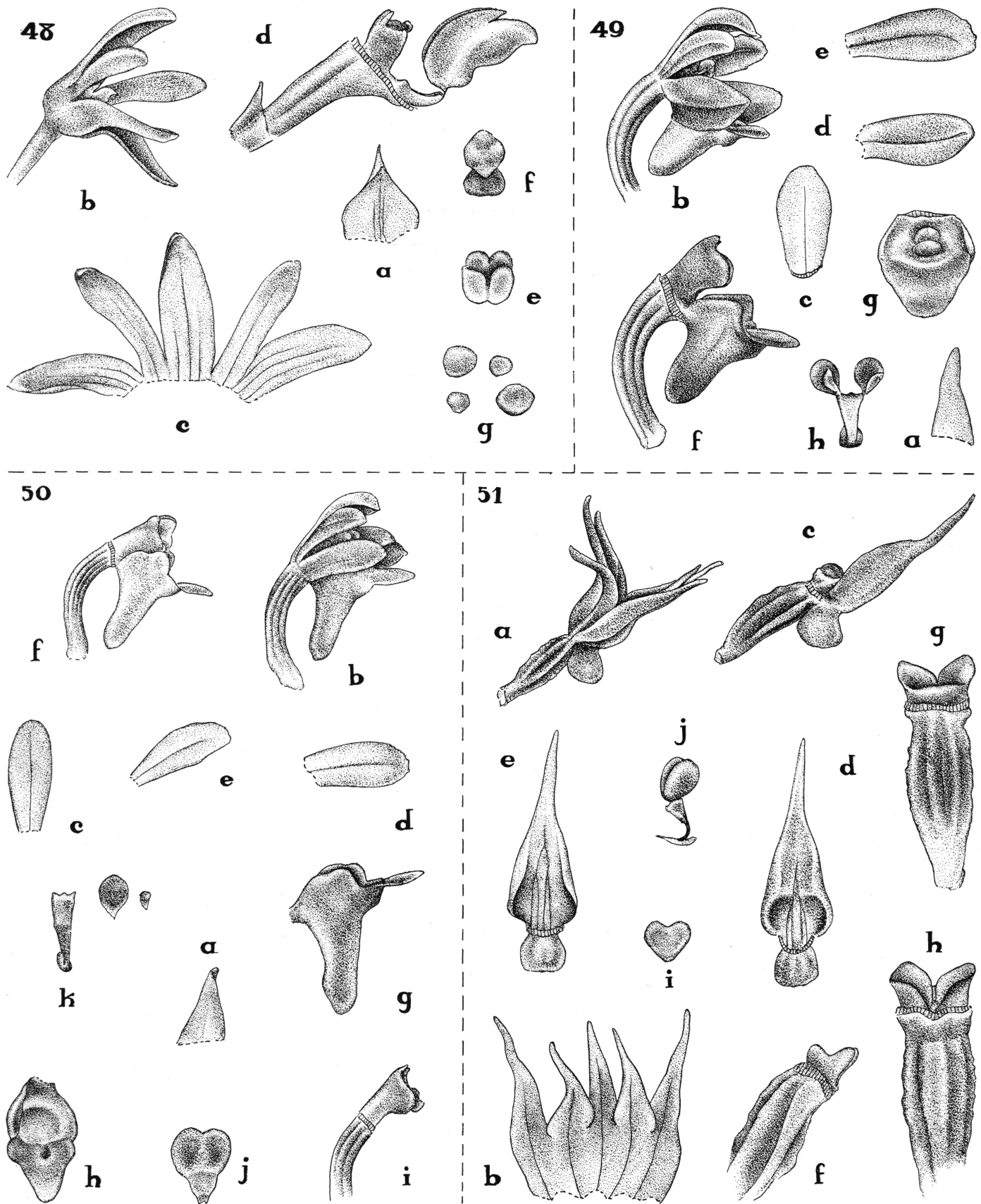
- a.* Bractea.
- b.* Flos.
- c.* Sepalum dorsale.
- d.* Sepalum laterale.
- e.* Petalum.
- f.* Labellum et gynostemium.
- g.* Labellum supra visum.
- h.* Pollinarium.

XV, 50. **Saccolabiopsis alata** J. J. S.

- a.* Bractea.
- b.* Flos.
- c.* Sepalum dorsale.
- d.* Sepalum laterale.
- e.* Petalum.
- f.* Labellum et gynostemium.
- g.* Labellum.
- h.* Idem, supra visum.
- i.* Gynostemium.
- j.* Anthera.
- k.* Pollinarium.

XV, 51. **Microtatorchis flava** J. J. S.

- a.* Flos.
- b.* Sepala et petala.
- c.* Labellum et gynostemium.
- d, e.* Labella.
- f.* Gynostemium.
- g.* Idem, dorso visum.
- h.* Idem, antice visum.
- i.* Anthera.
- j.* Pollinarium.



XVI, 52. **Microtatorchis Doctersii** J. J. S.

- a.* Flos.
- b.* Sepala et petala.
- c.* Labellum et gynostemium.
- d.* Labellum.
- e.* Gynostemium.
- f.* Idem, dorso visum.
- g.* Anthera.

XVI, 53. **Microtatorchis triangulipetala** J. J. S.

- a.* Pars inflorescentiae.
- b.* Flos.
- c.* Sepala et petala.
- d.* Labellum et gynostemium.
- e.* Labellum.
- f.* Gynostemium.
- g.* Idem, antice visum.
- h.* Anthera.
- i.* Gynostemium dorso visum.

XVI, 54. **Taeniophyllum apiculatum** J. J. S.

- a.* Pars rachidis.
- b.* Sepalum dorsale.
- c.* Sepalum laterale.
- d.* Petalum.
- e.* Labellum et gynostemium.
- f, g.* Labella.
- h.* Gynostemium.
- i.* Anthera.
- j.* Pollinarium.

XVI, 55. **Taeniophyllum dentilobum** J. J. S.

- a.* Bractea.
- b.* Flos.
- c.* Sepalum dorsale.
- d.* Sepalum laterale.
- e.* Petalum.
- f.* Labellum.
- g.* Labelli lamina expansa.
- h.* Gynostemium.
- i.* Anthera.
- j.* Stipes et glandula.

